

FIG. 1

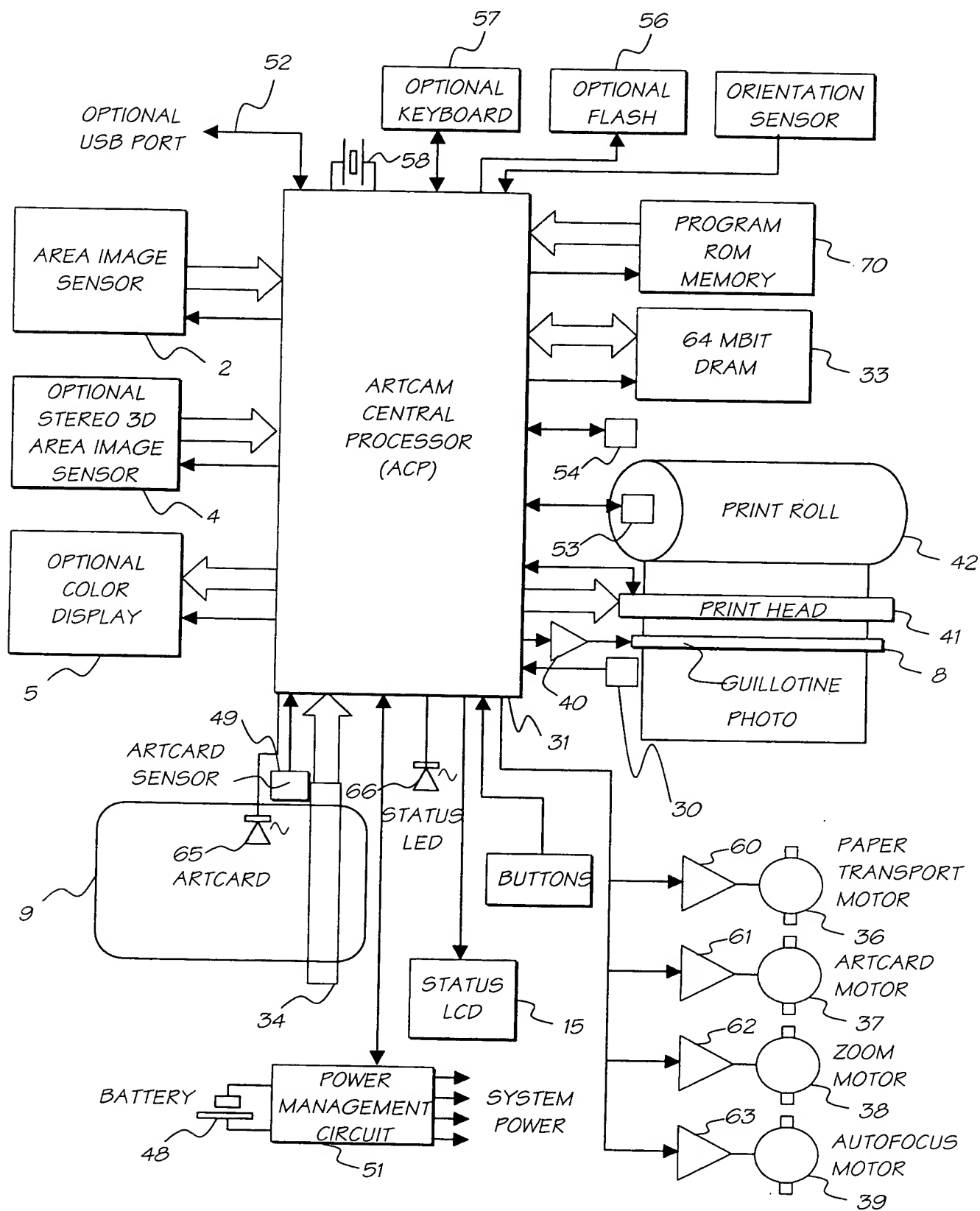


FIG. 2

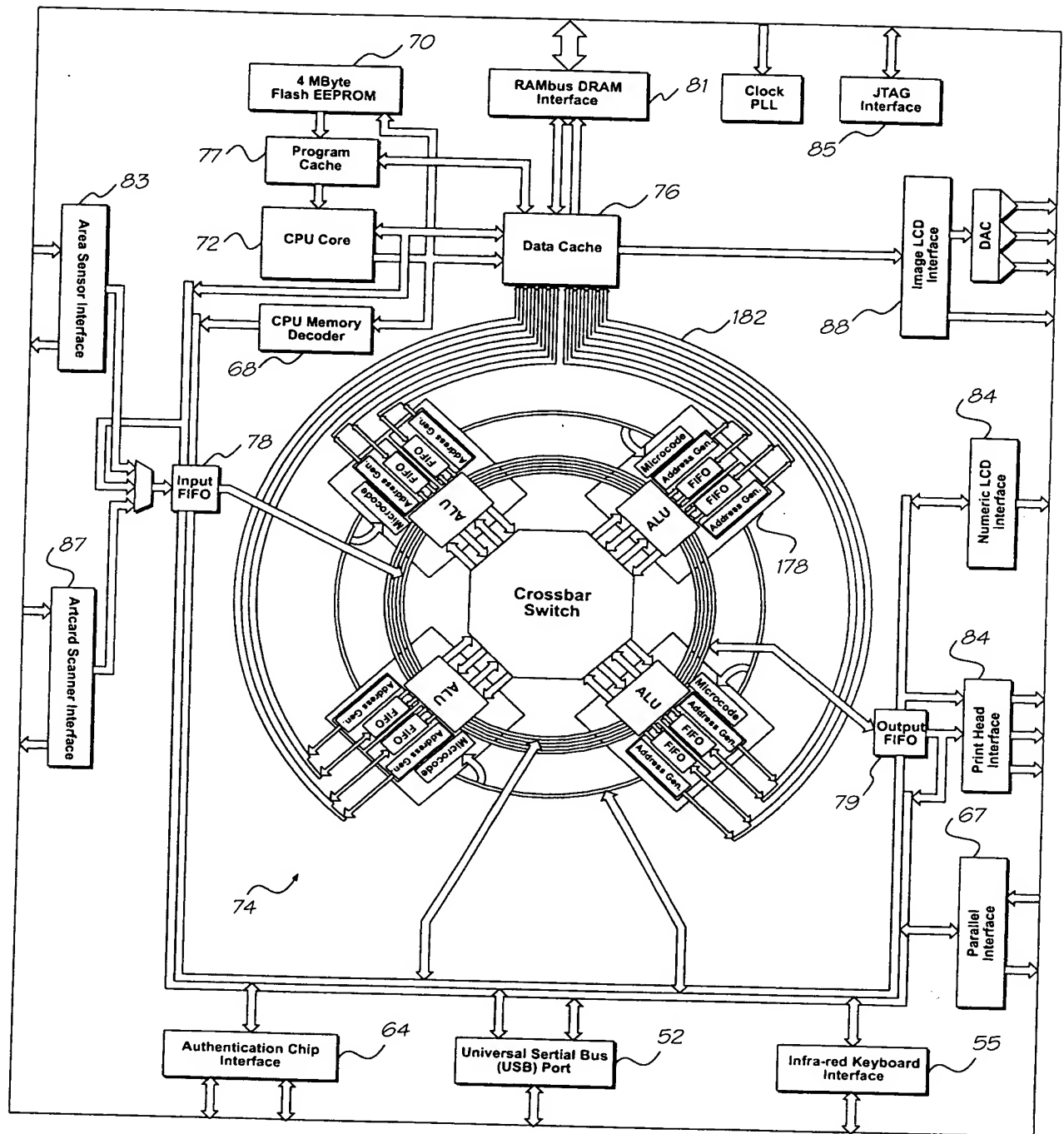


FIG. 3

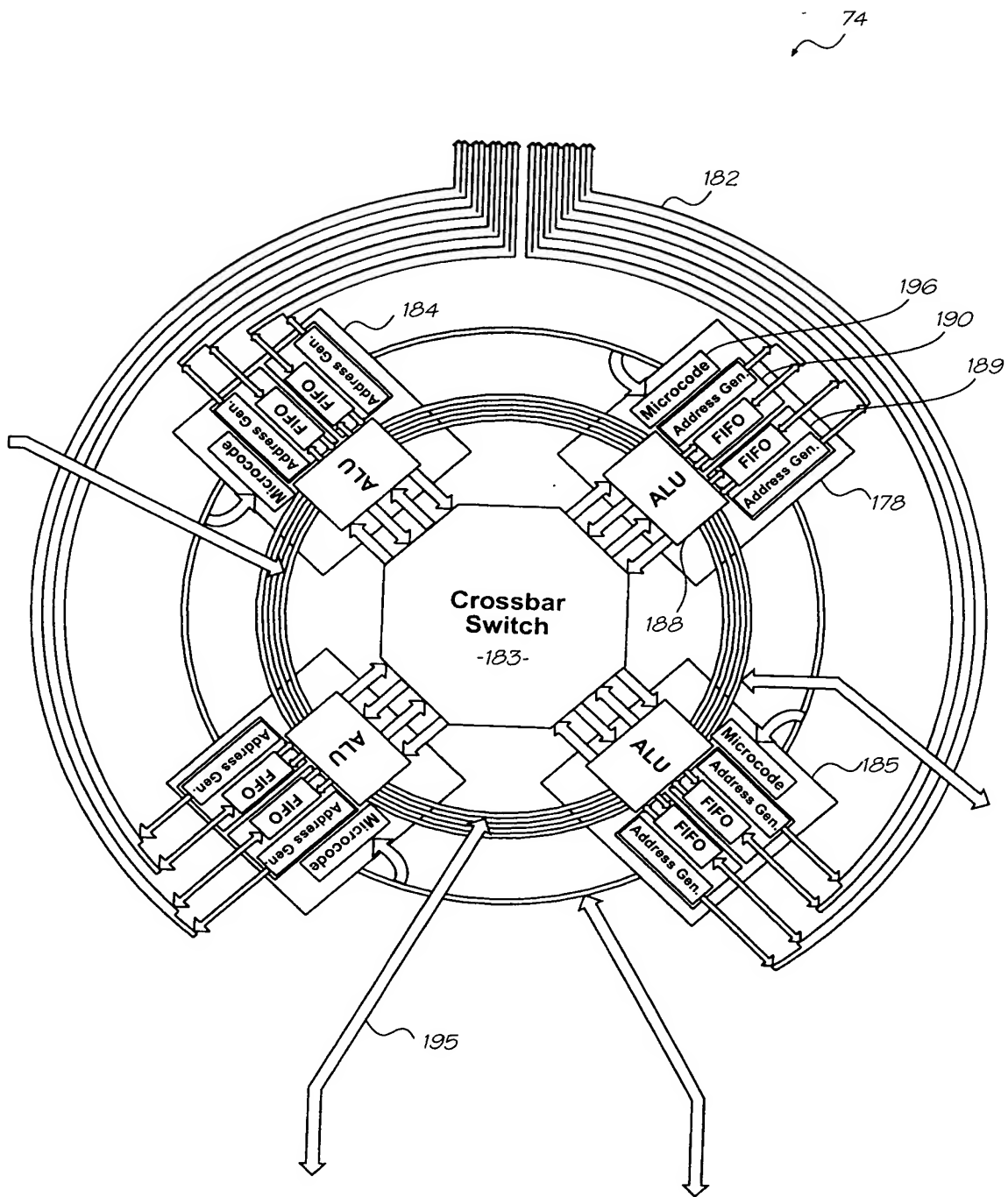


FIG. 3( a )

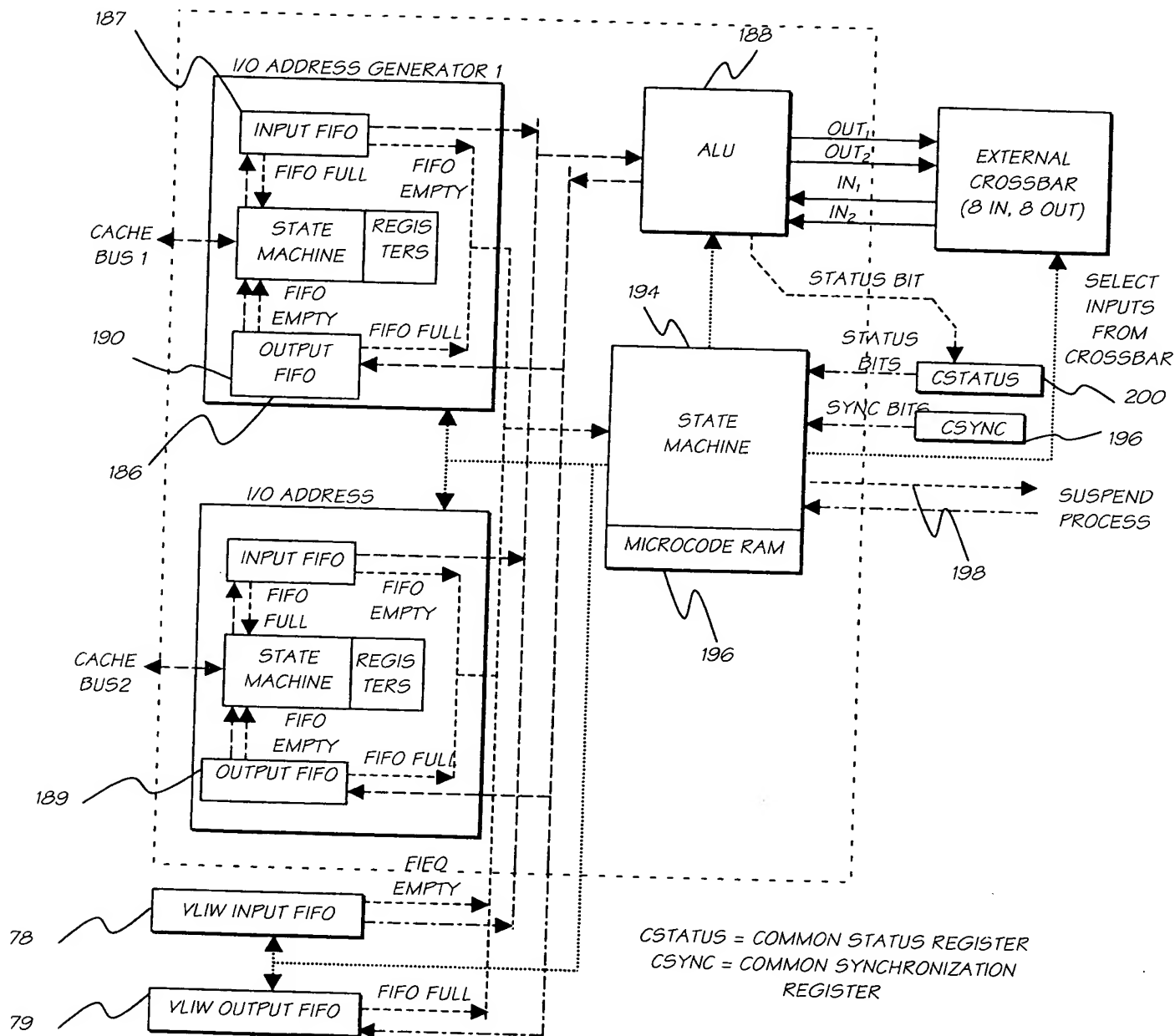


FIG. 4

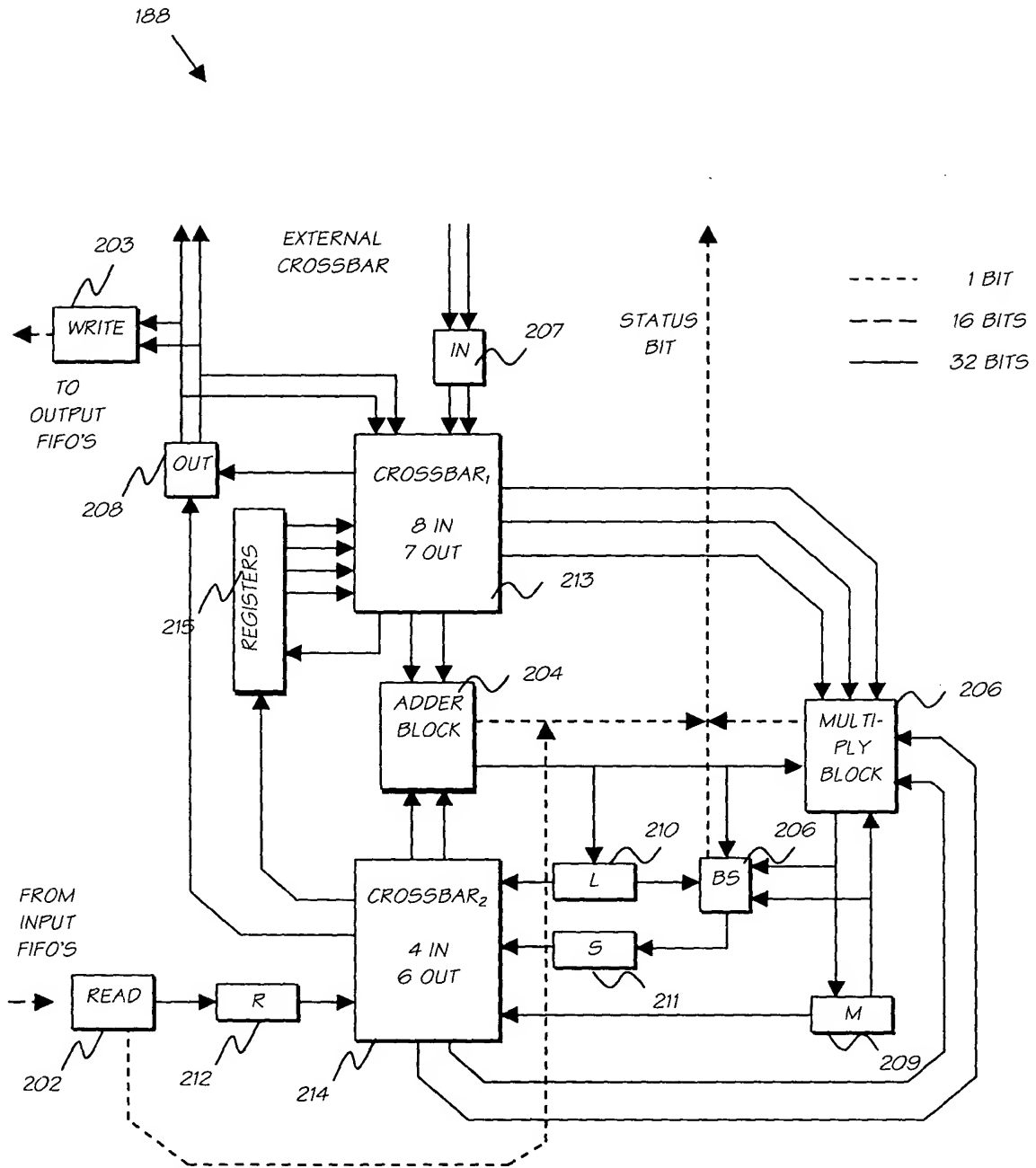


FIG. 5

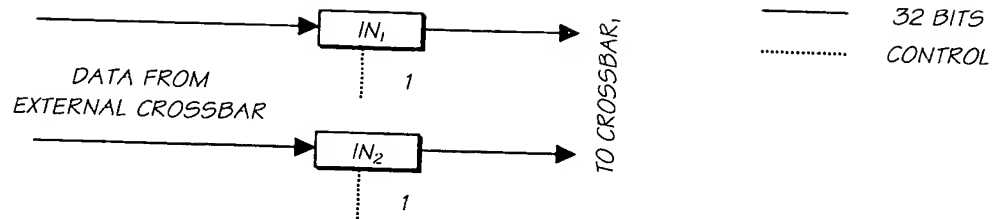


FIG. 6

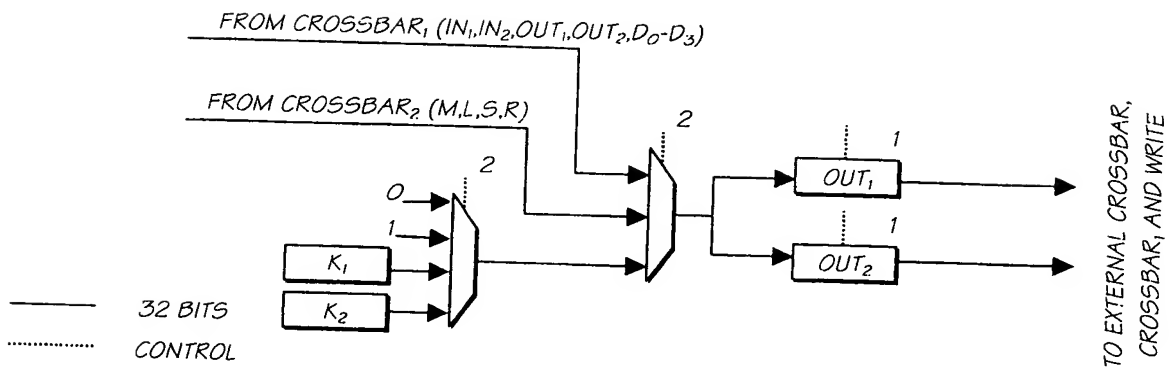


FIG. 7

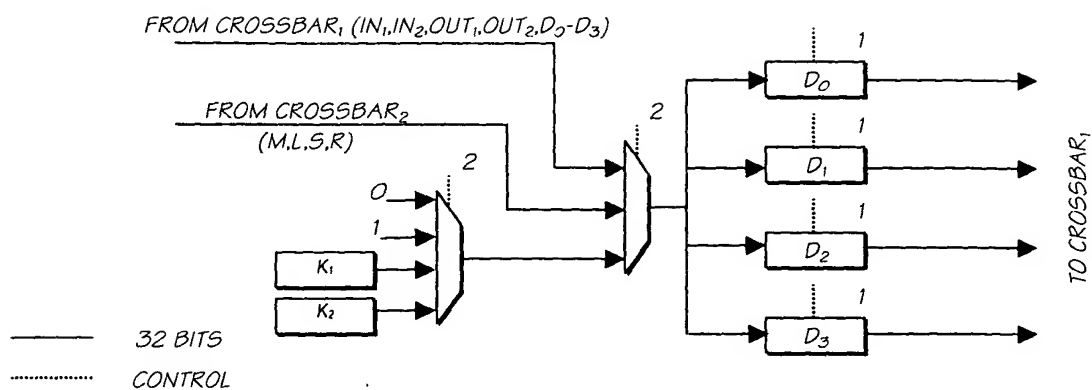


FIG. 8

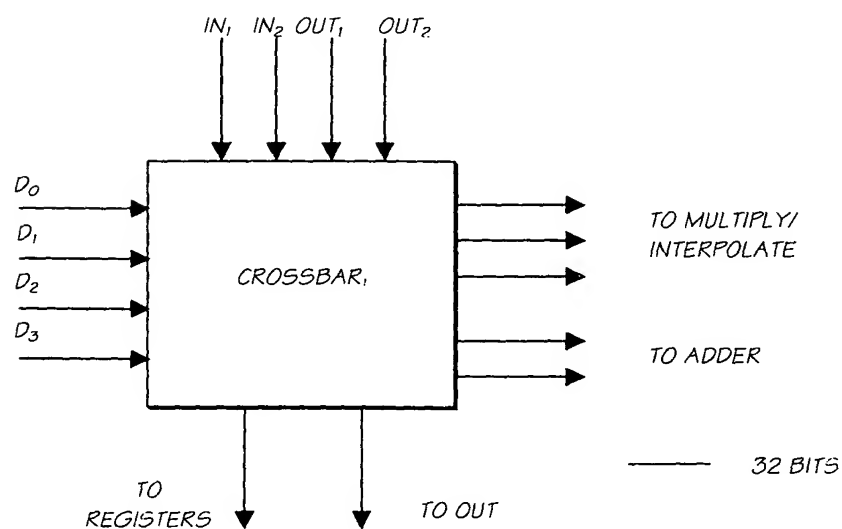


FIG. 9



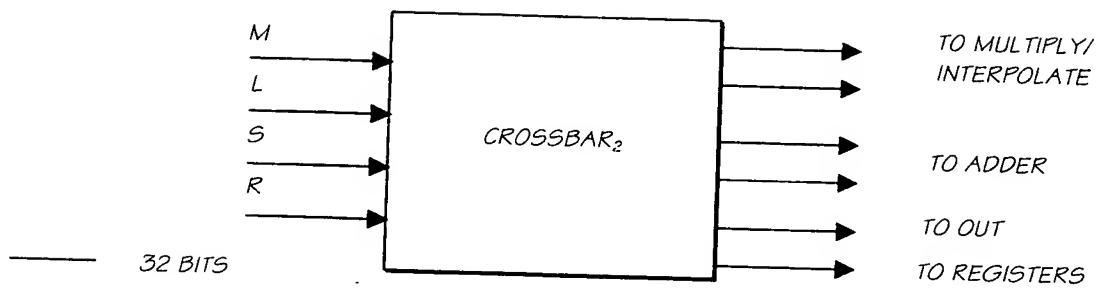


FIG. 10

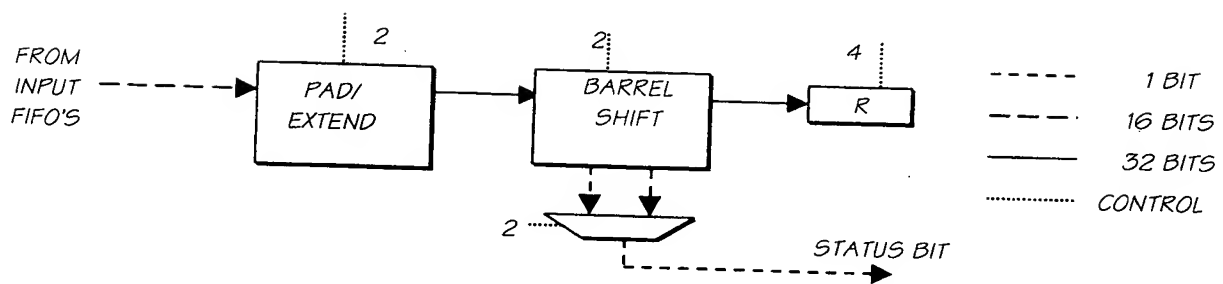


FIG. 11

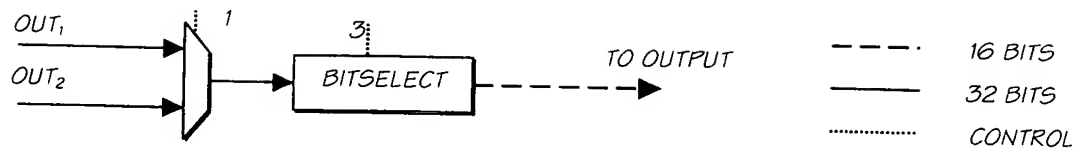


FIG. 12

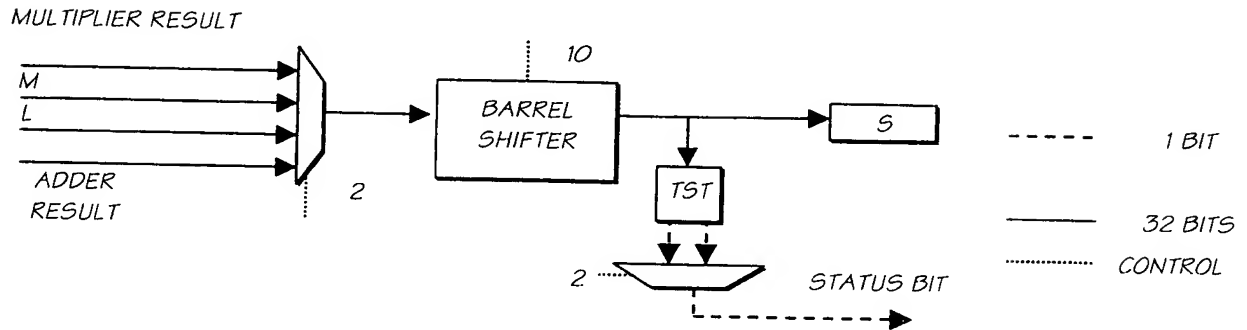


FIG. 13

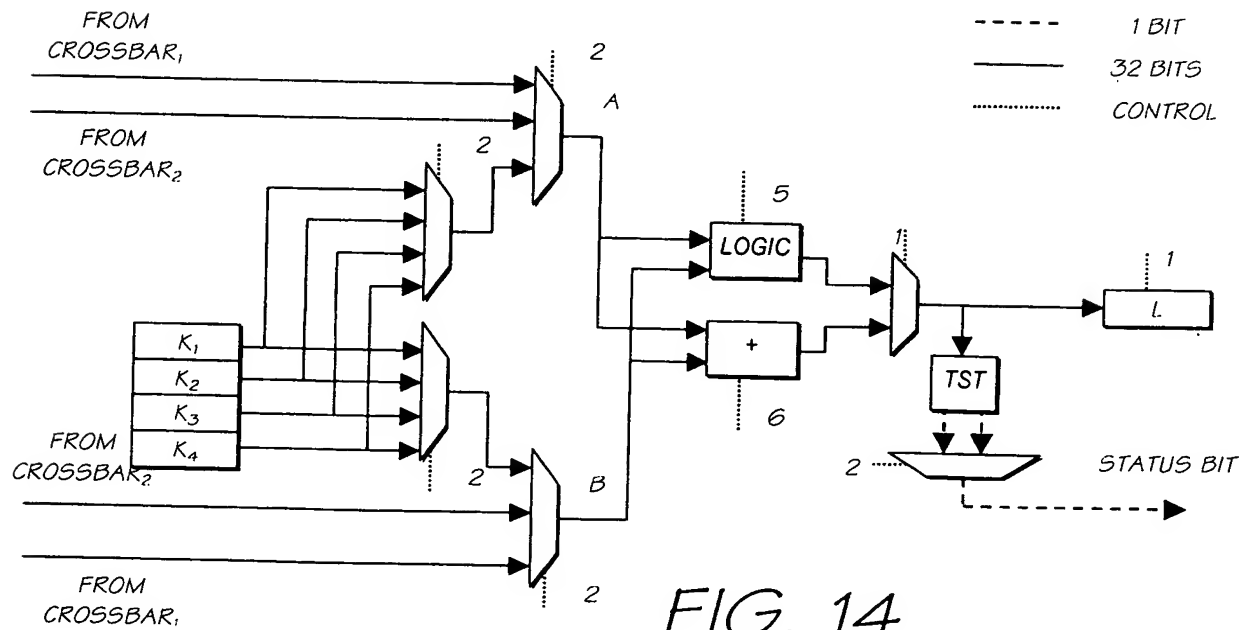


FIG. 14

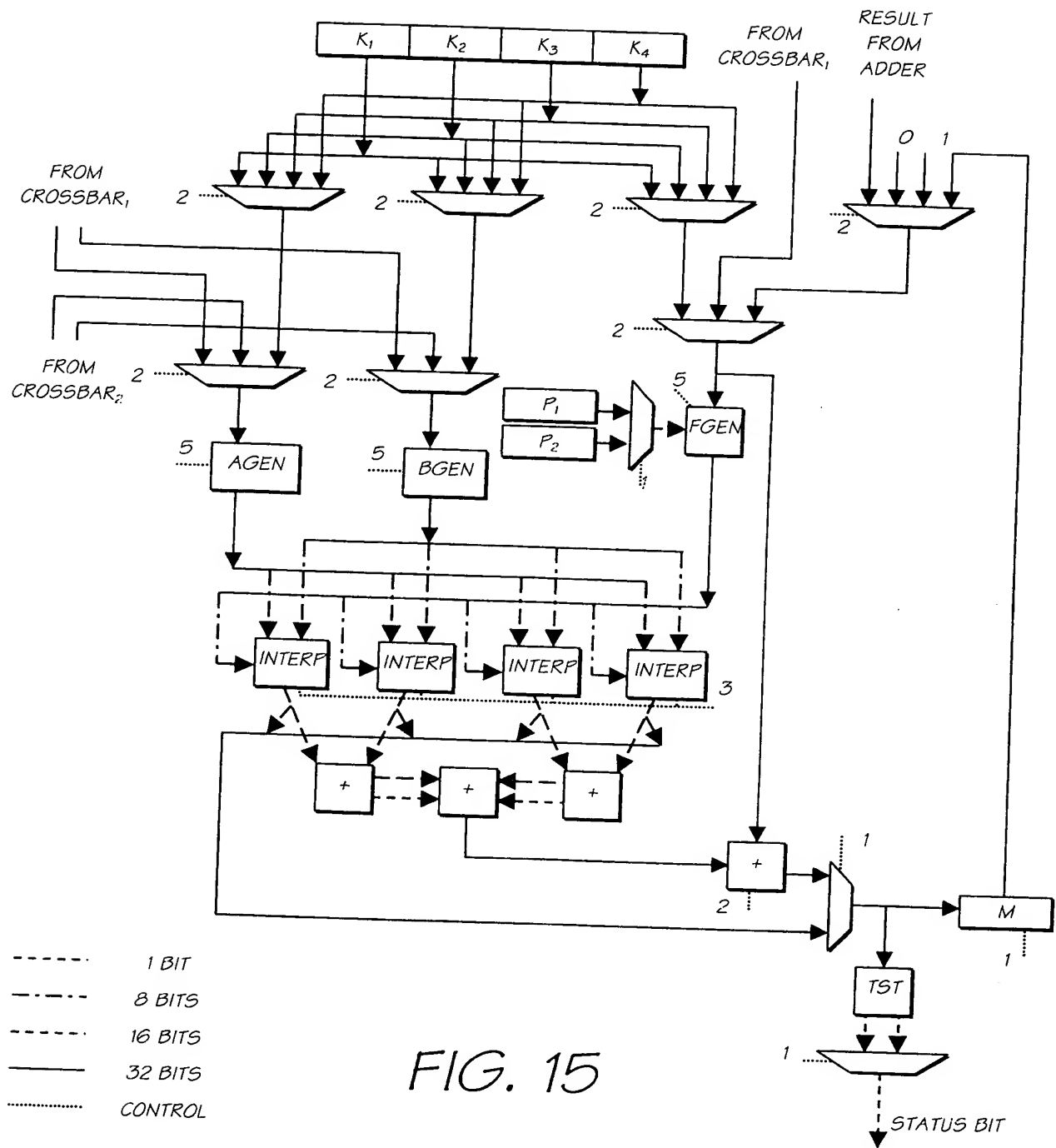


FIG. 15

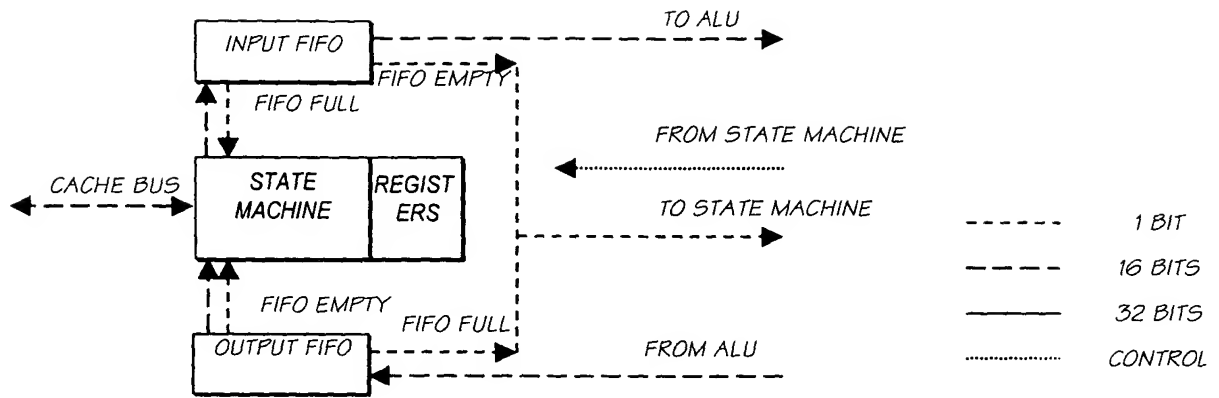


FIG. 16

ORDER OF PIXELS PRESENTED BY A SEQUENTIAL READ ITERATOR  
ON A 4 X 2 IMAGE WITH PADDING.

0	1	2	3	
4	5	6	7	

FIG. 17

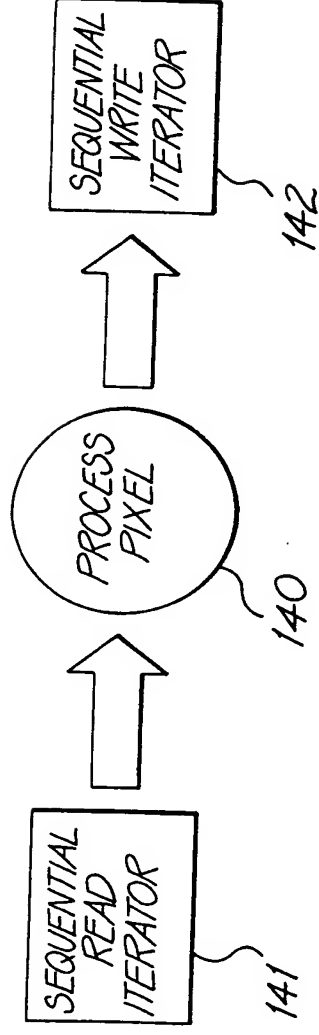
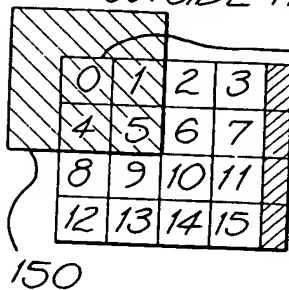


FIG. 18

A 3x3 BOX VIEW TRAVERSES THE PIXELS IN ORDER: 0,1,2,3,4,5,6,7,8 ETC.  
PLACING A 3x3 BOX CENTERED OVER EACH PIXEL...

3x3 BOX VIEW OF FIRST PIXEL IN  
IMAGE = 9 PIXELS, 5 OF WHICH  
ARE OUTSIDE THE IMAGE

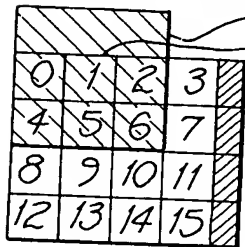


FIRST 9 PIXELS FROM THE  
BOX READ ITERATOR:

IF DUPLICATION OF EDGE PIXELS IS ON:  
0,0,0,0,0,1,4,4,5

IF DUPLICATION OF EDGE PIXELS IS OFF:  
V,V,V,V,0,1,V,4,5  
WHERE V IS CONSTANT  
"OUTSIDE IMAGE" PIXEL VALUE

3x3 BOX VIEW OF SECOND PIXEL IN  
IMAGE = 9 PIXELS, 3 OF WHICH  
ARE OUTSIDE THE IMAGE



SECOND 9 PIXELS FROM THE  
BOX READ ITERATOR:

IF DUPLICATION OF EDGE PIXELS IS ON:  
0,1,2,0,1,2,4,5,6

IF DUPLICATION OF EDGE PIXELS IS OFF:  
V,V,V,0,1,2,4,5,6  
WHERE V IS CONSTANT  
"OUTSIDE IMAGE" PIXEL VALUE

FIG. 19

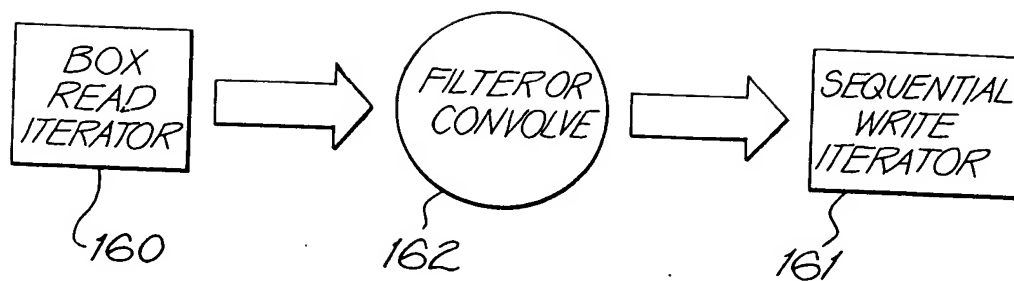


FIG. 20

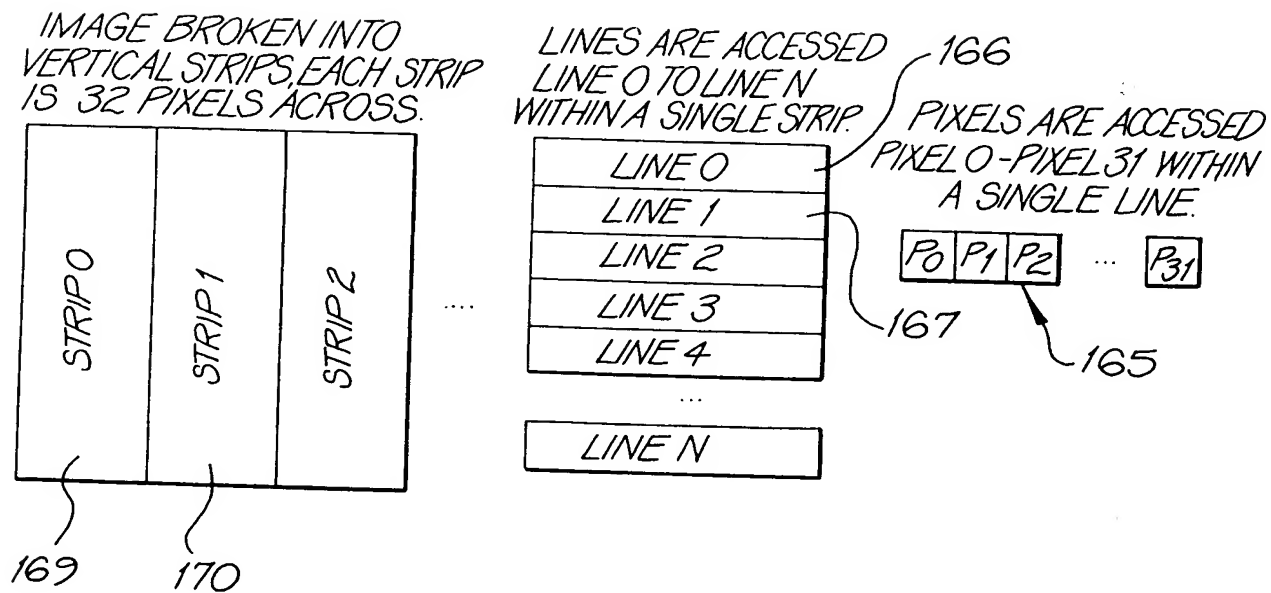


FIG. 21

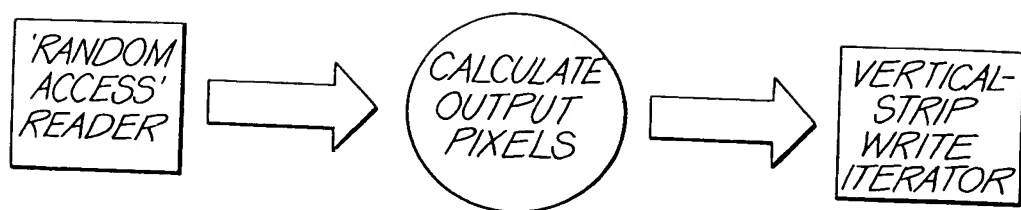


FIG. 22



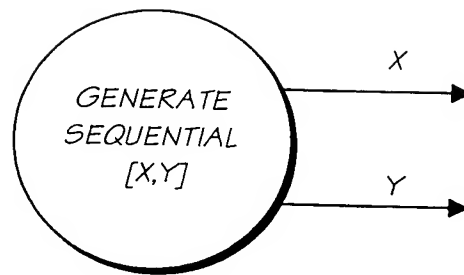


FIG. 23

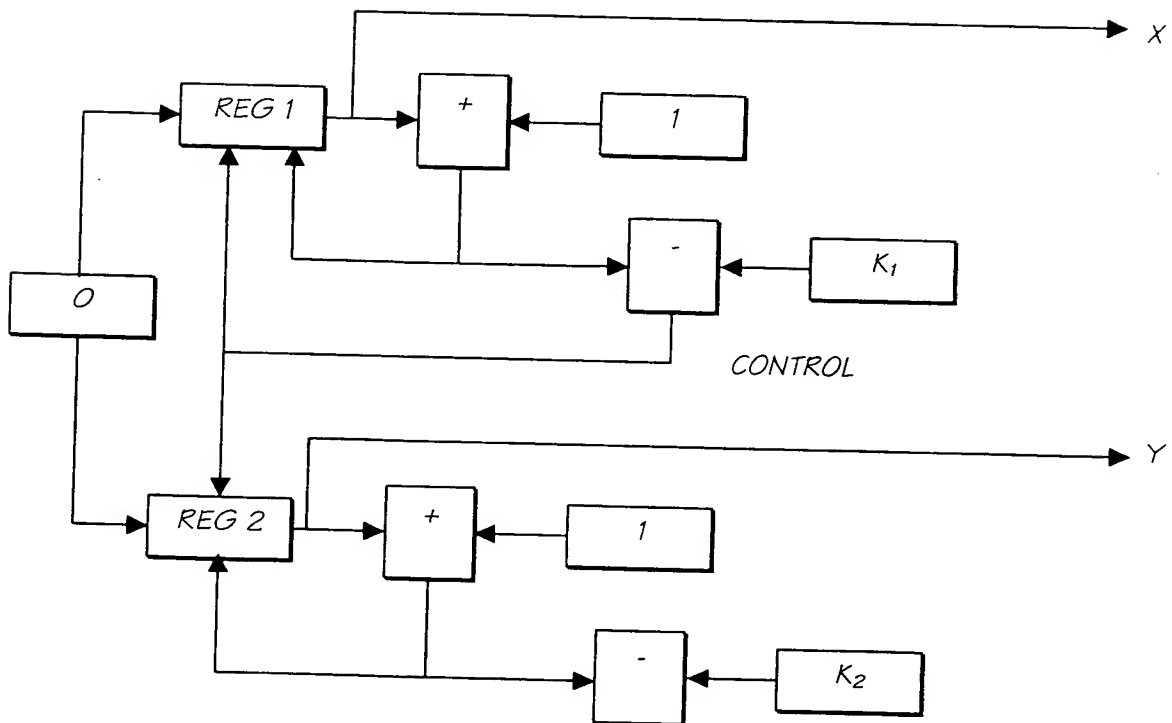


FIG. 24

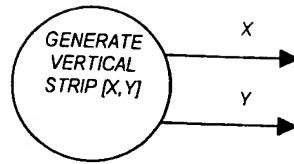


FIG. 25

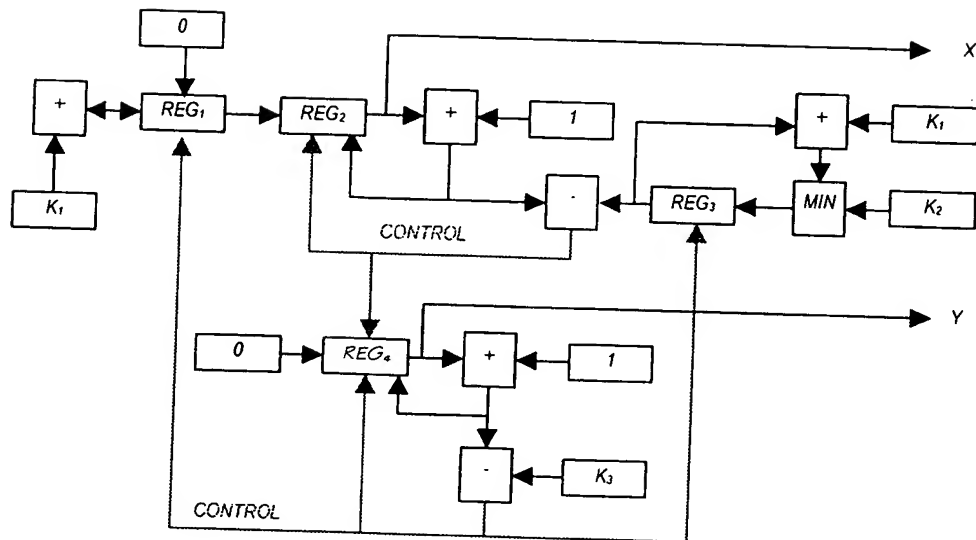
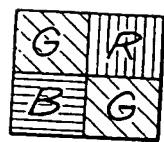


FIG. 26



2x2 PIXEL BLOCK FROM CCD

FIG. 27

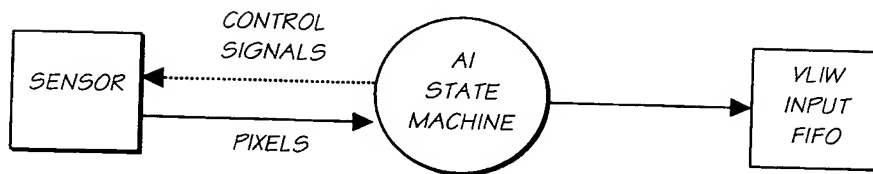


FIG. 28

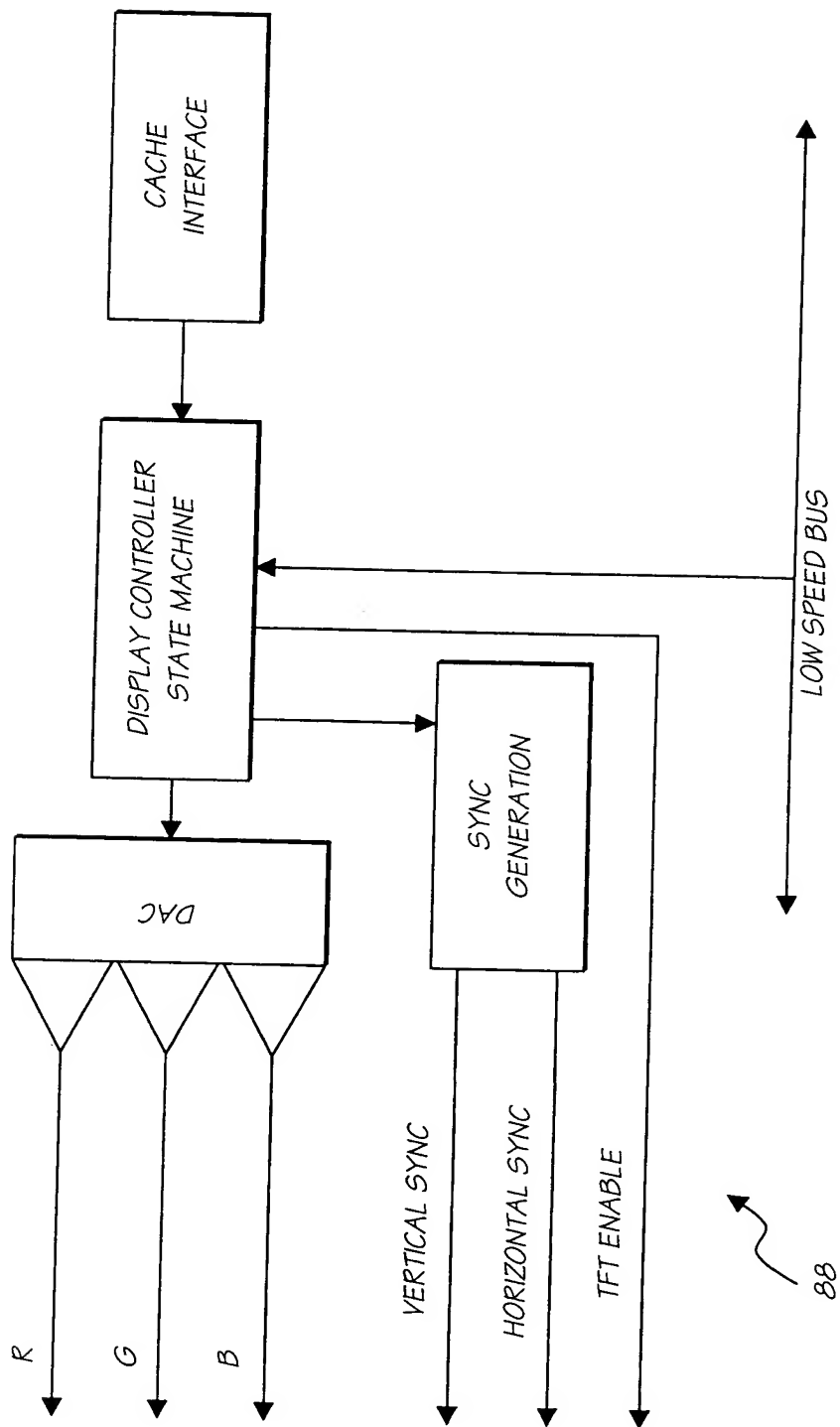
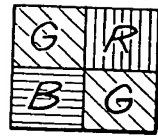


FIG. 29



2x2 PIXEL BLOCK FROM CCD

FIG. 30

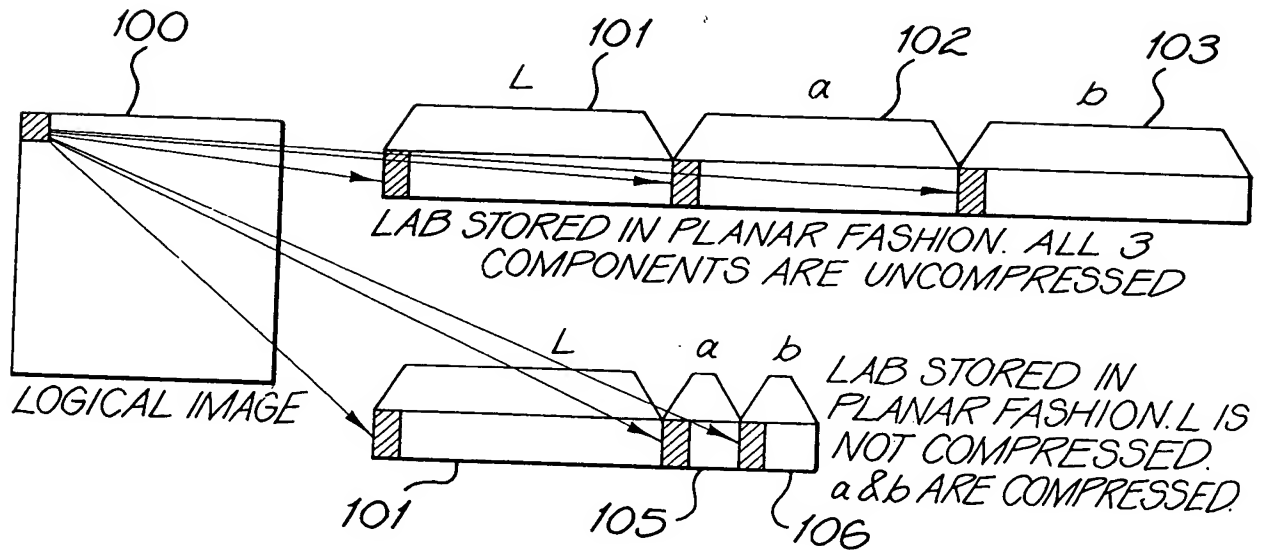


FIG. 31

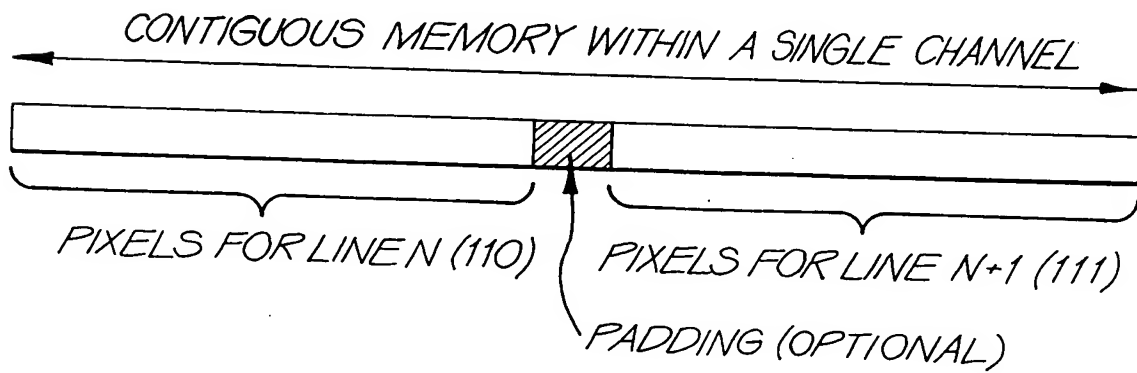


FIG. 32

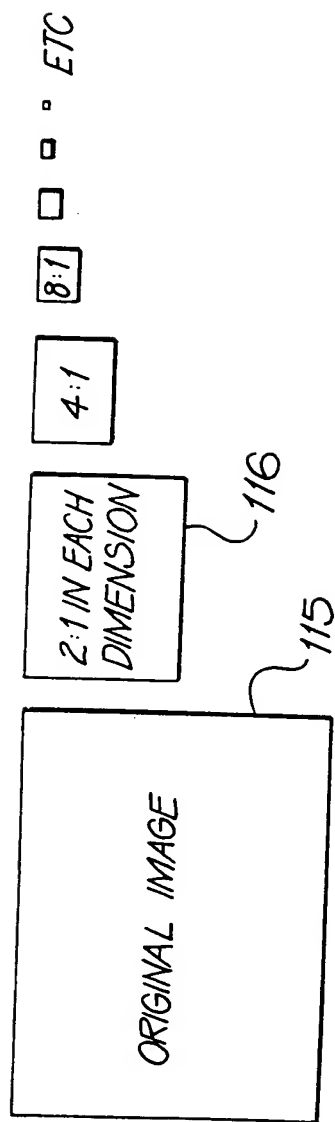


FIG. 33

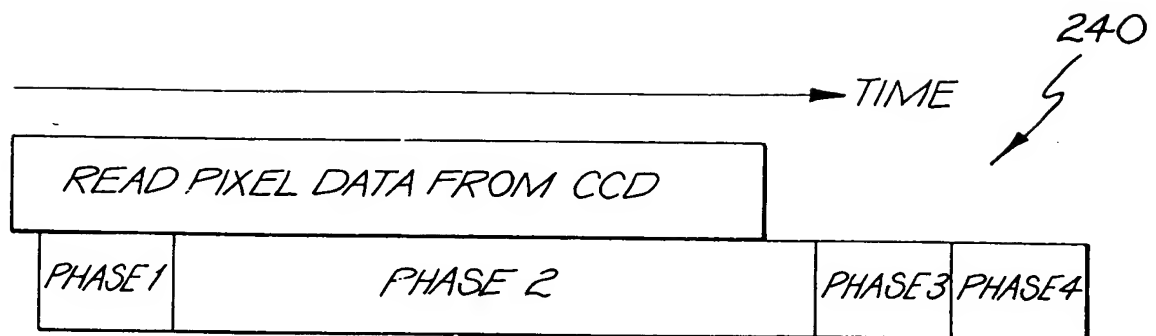


FIG. 34

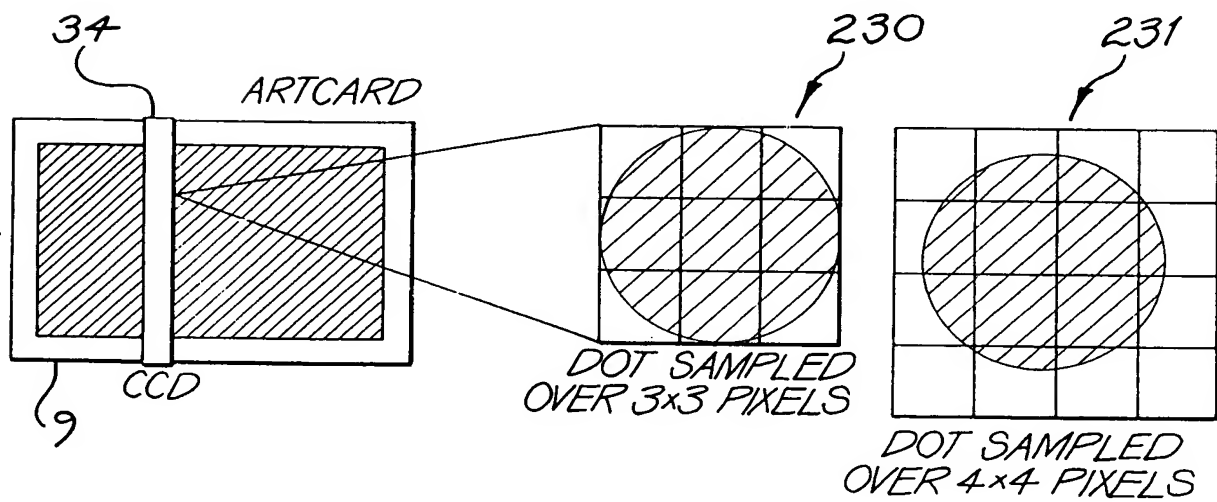


FIG. 35

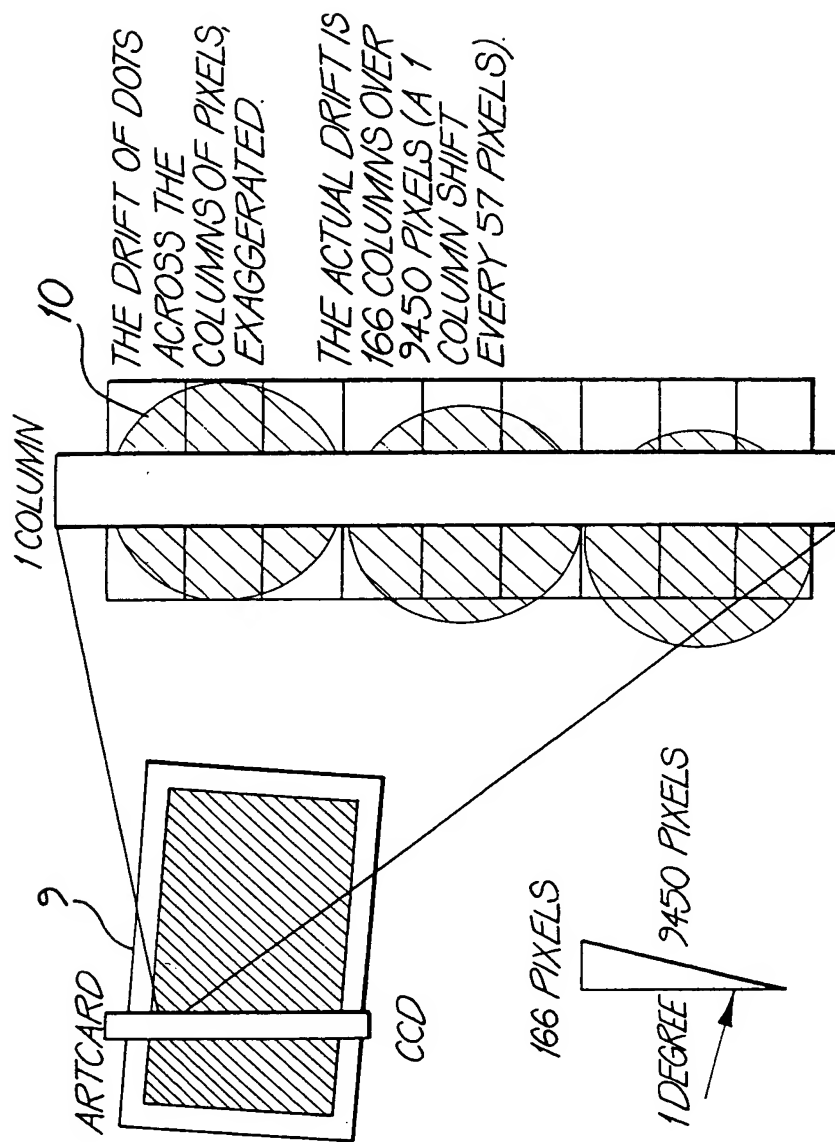


FIG. 36



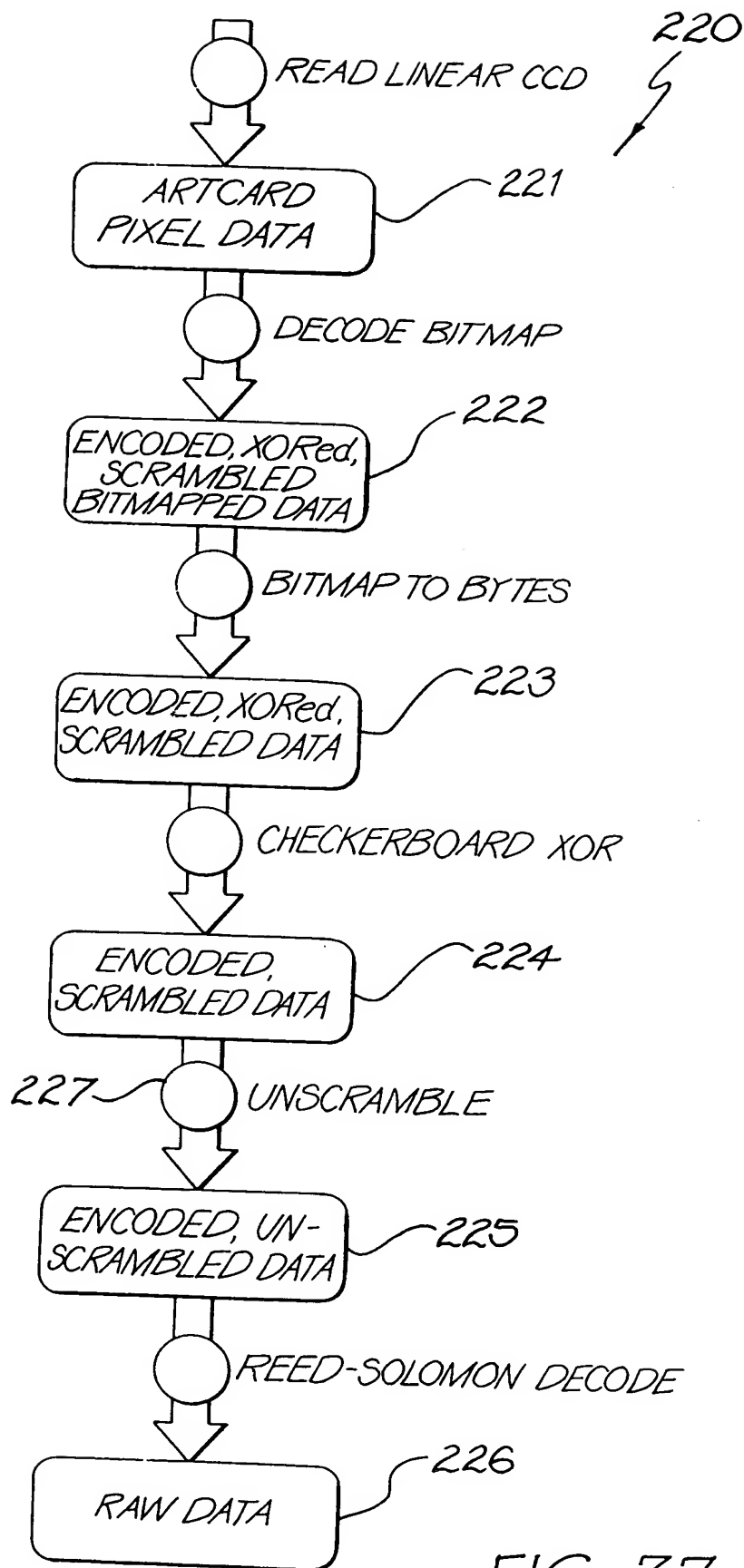


FIG. 37

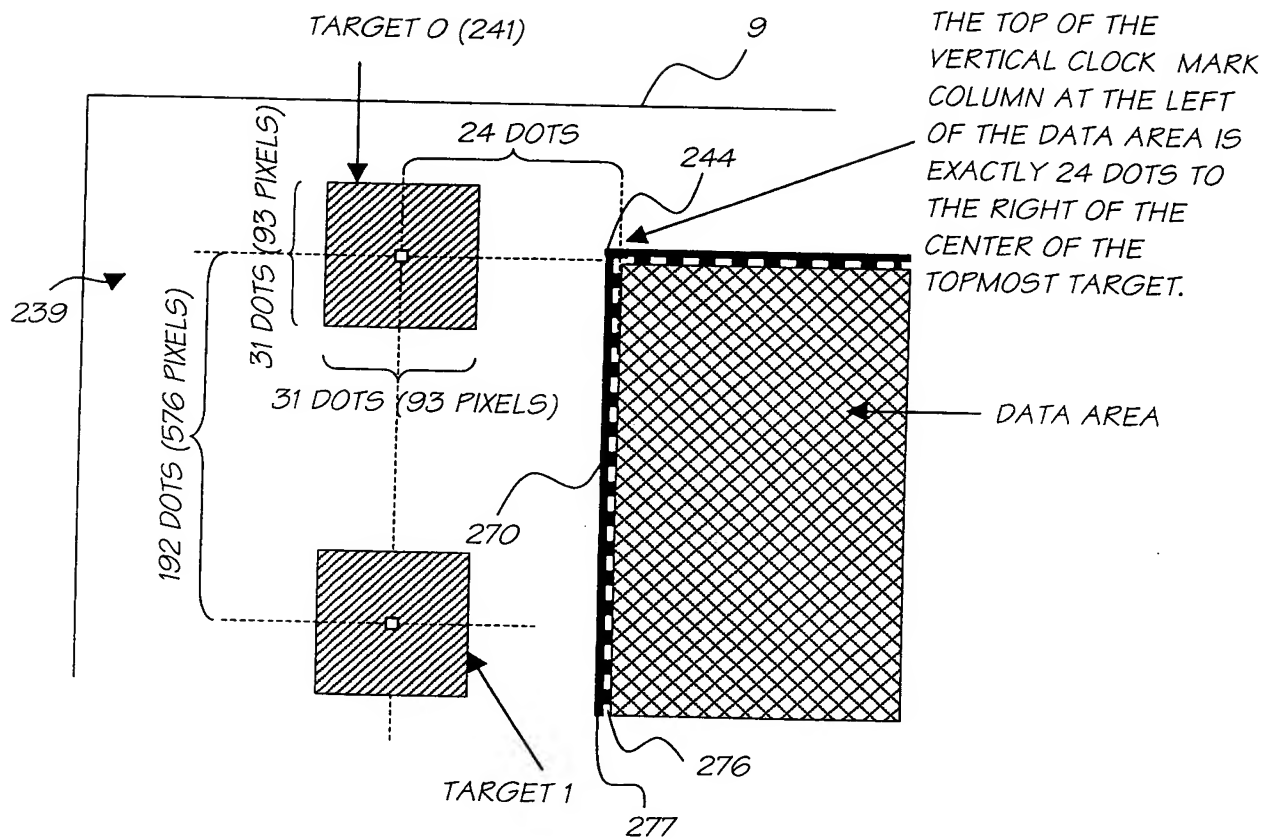


FIG. 38

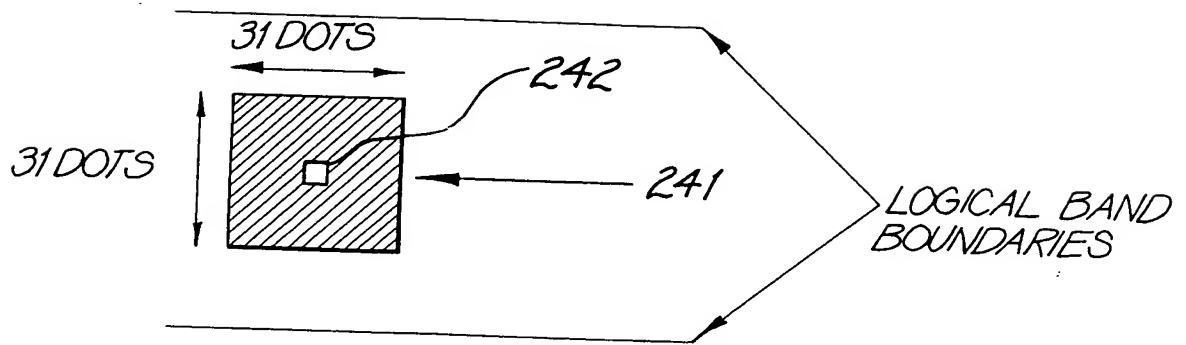


FIG. 39

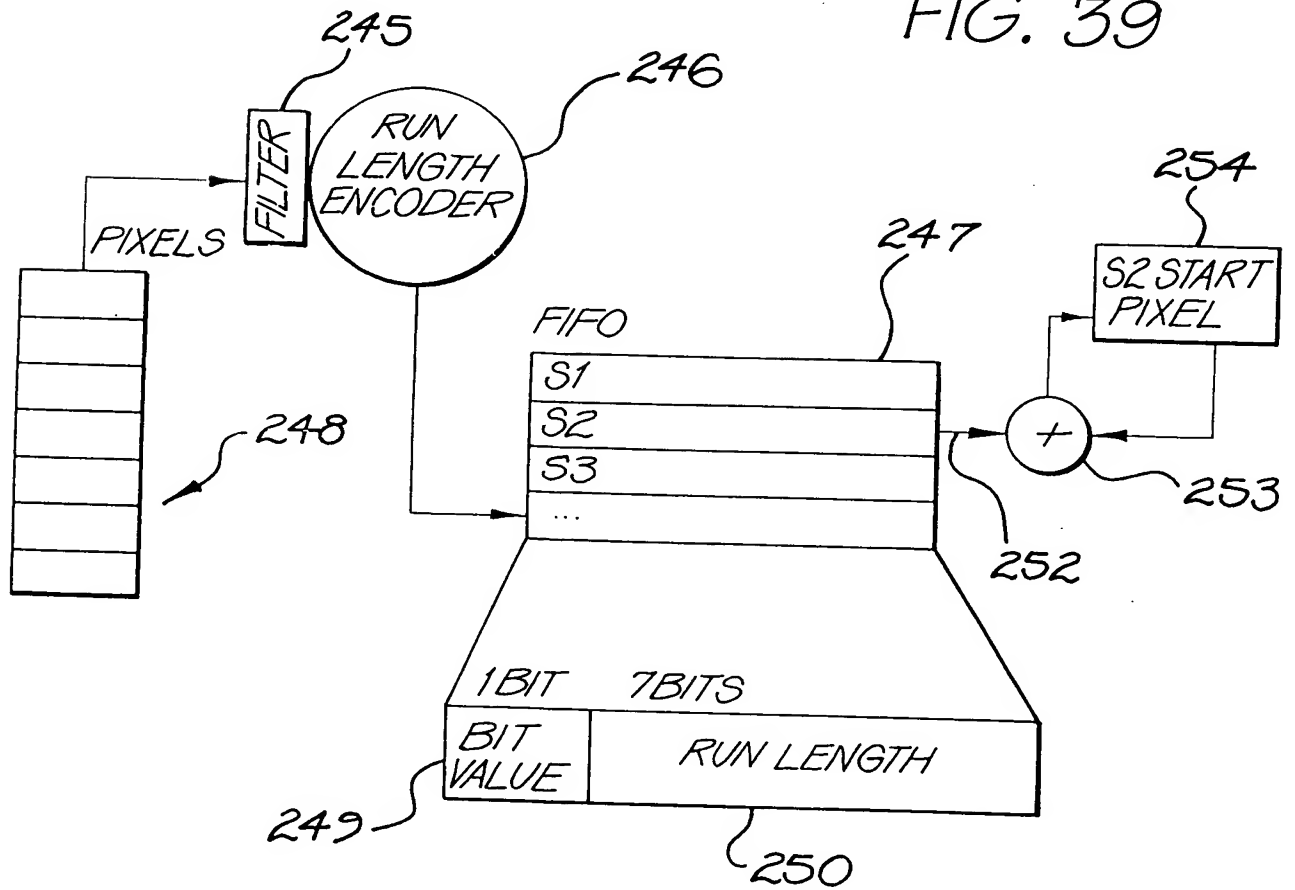


FIG. 40

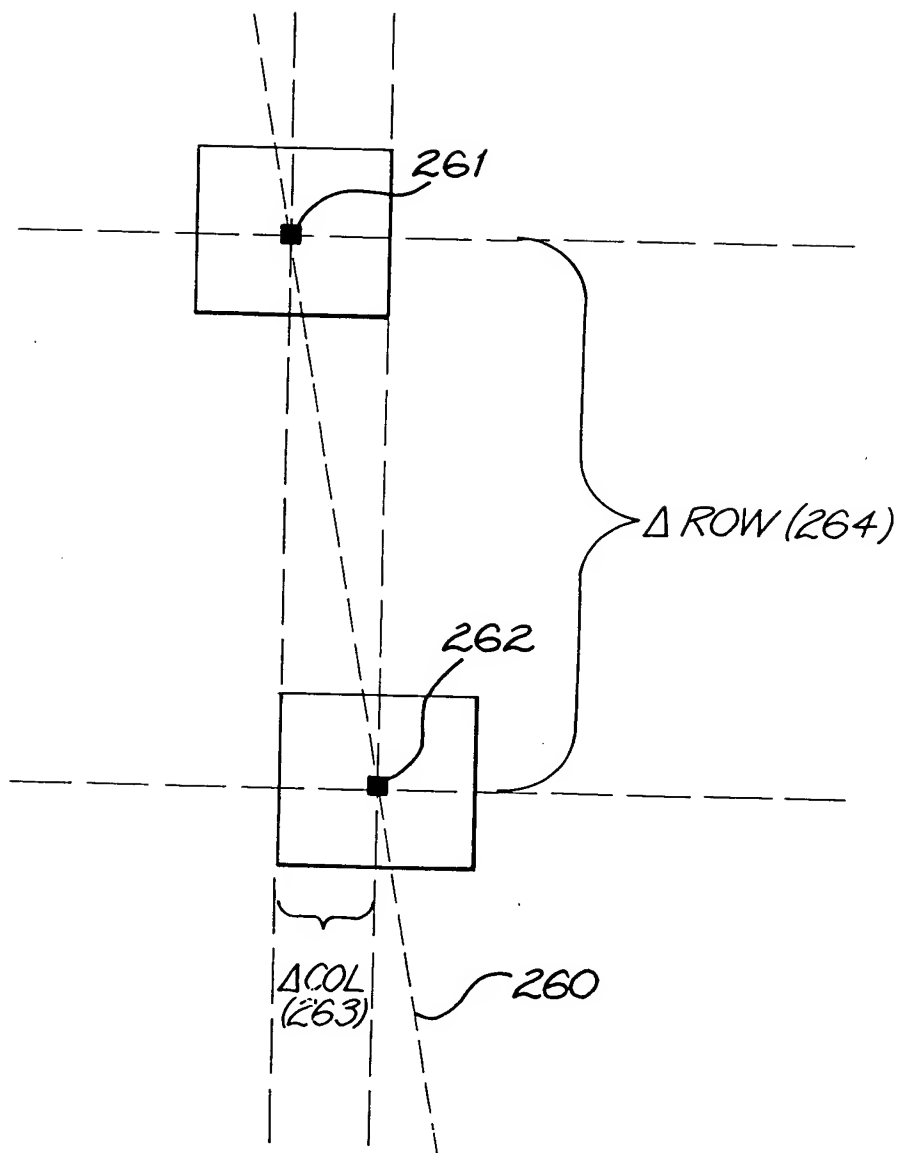


FIG. 41

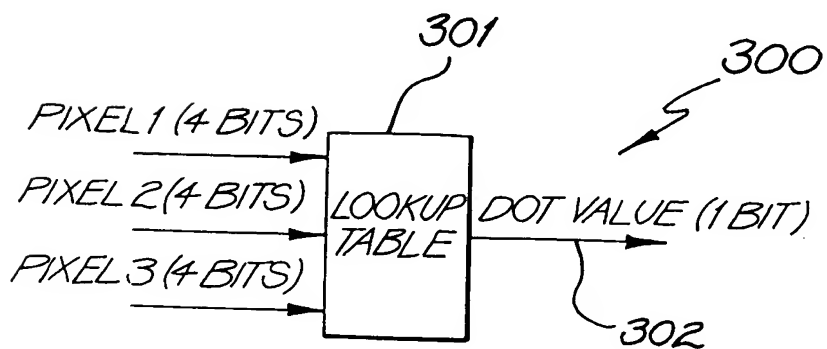
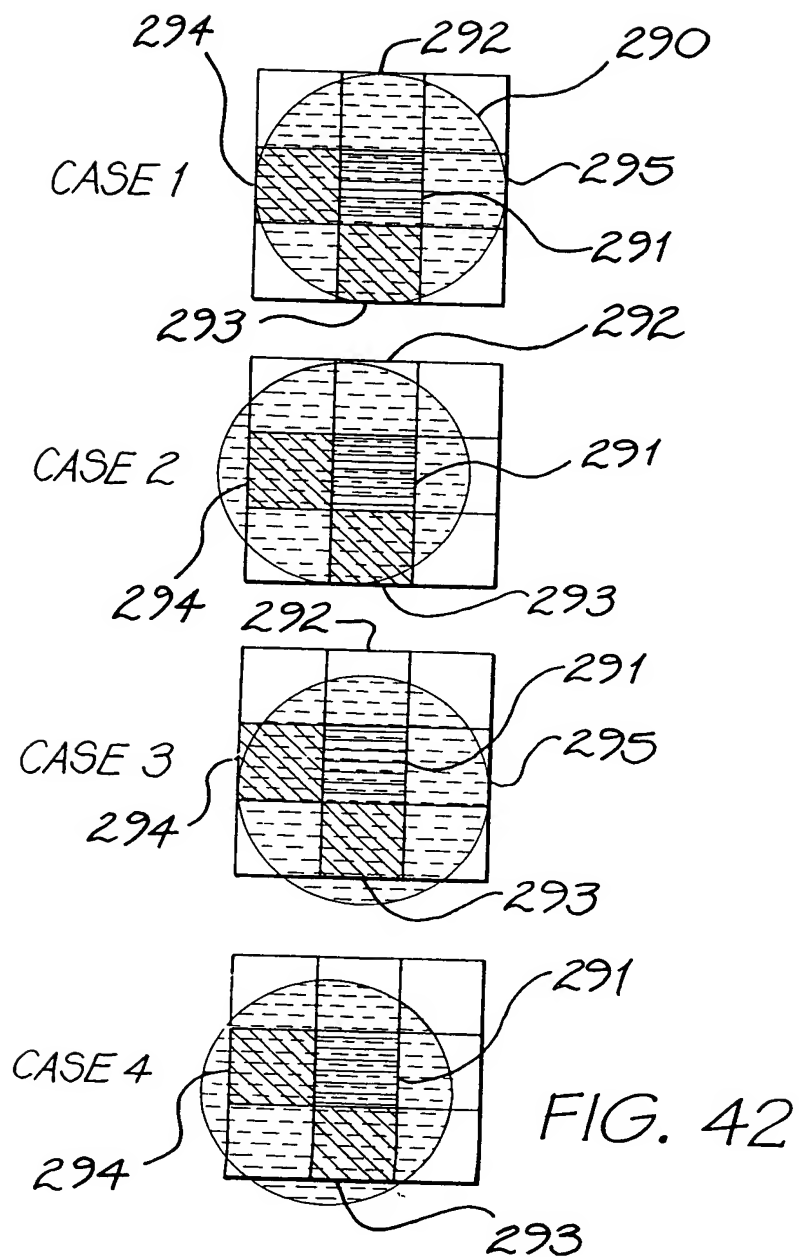


FIG. 43

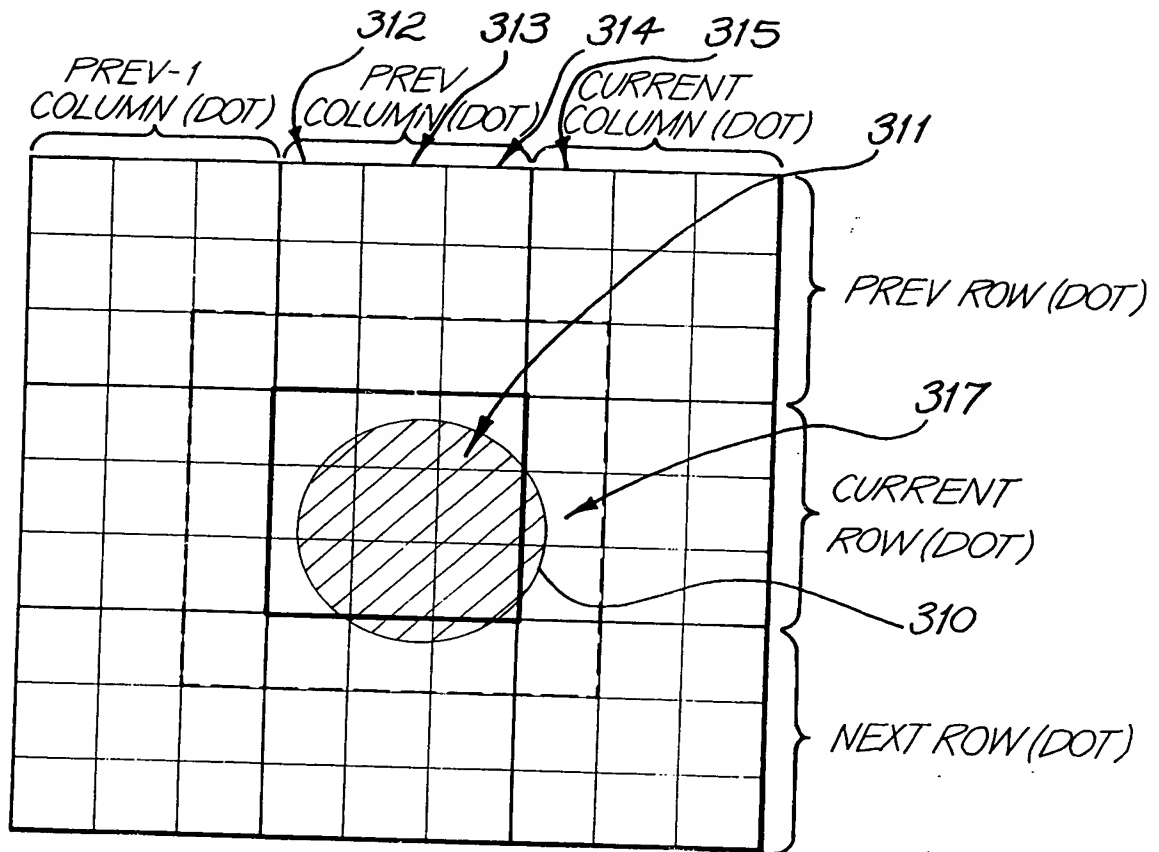


FIG. 44

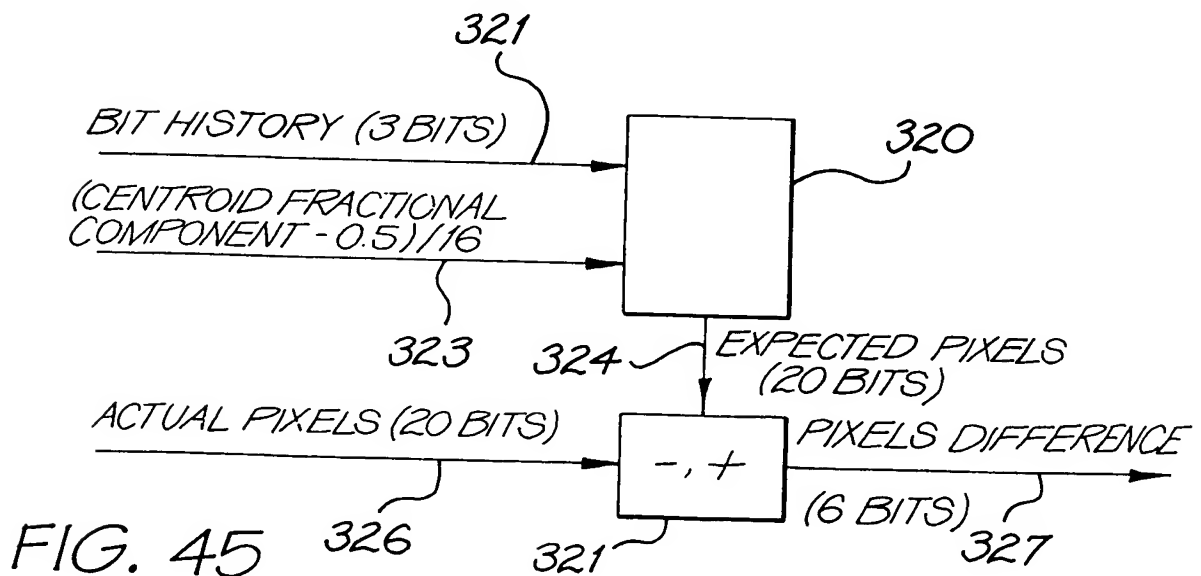


FIG. 45

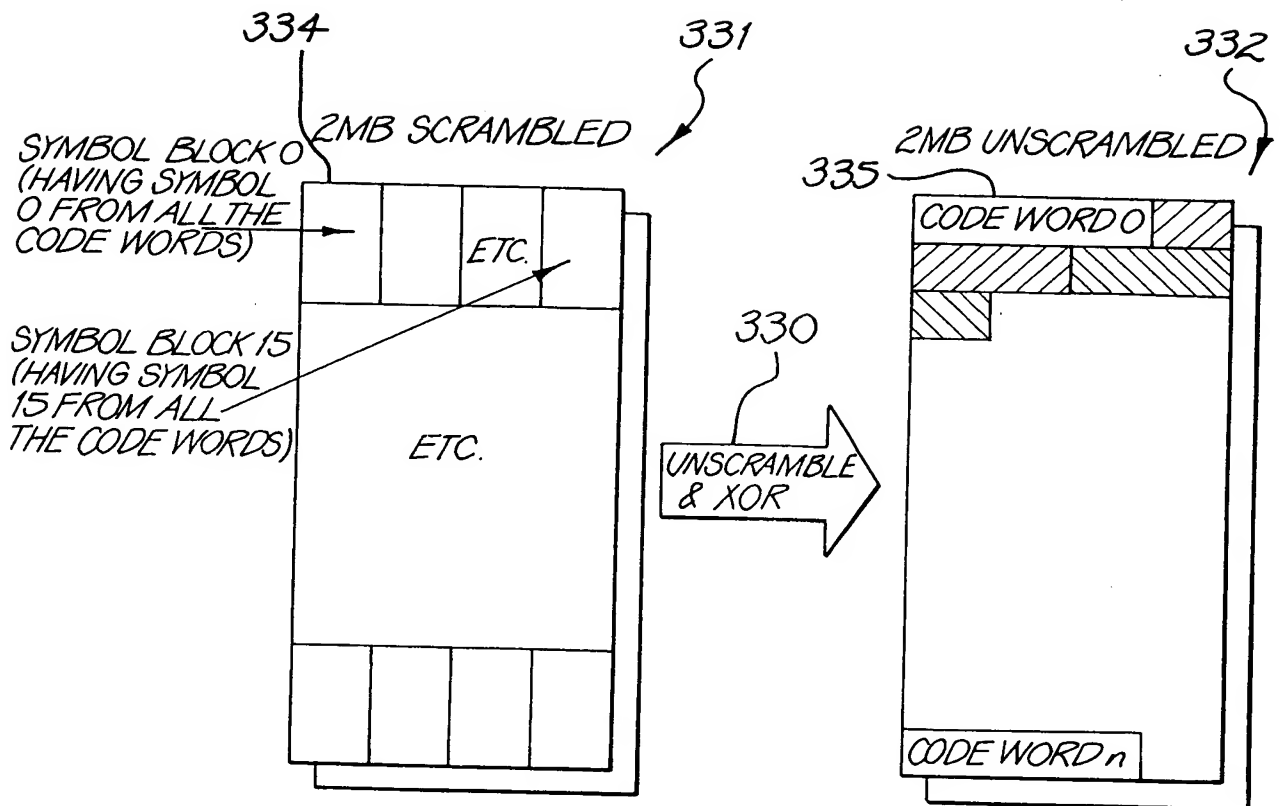
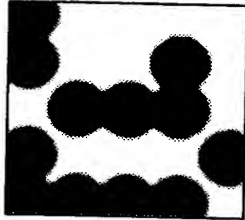
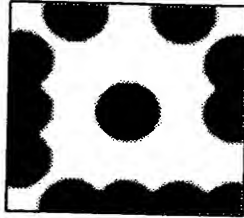


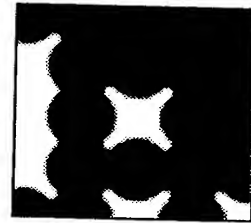
FIG. 46



BLACK AND WHITE DOTS



BLACK DOT SURROUNDED BY WHITE



WHITE DOT SURROUNDED BY BLACK

FIG. 47

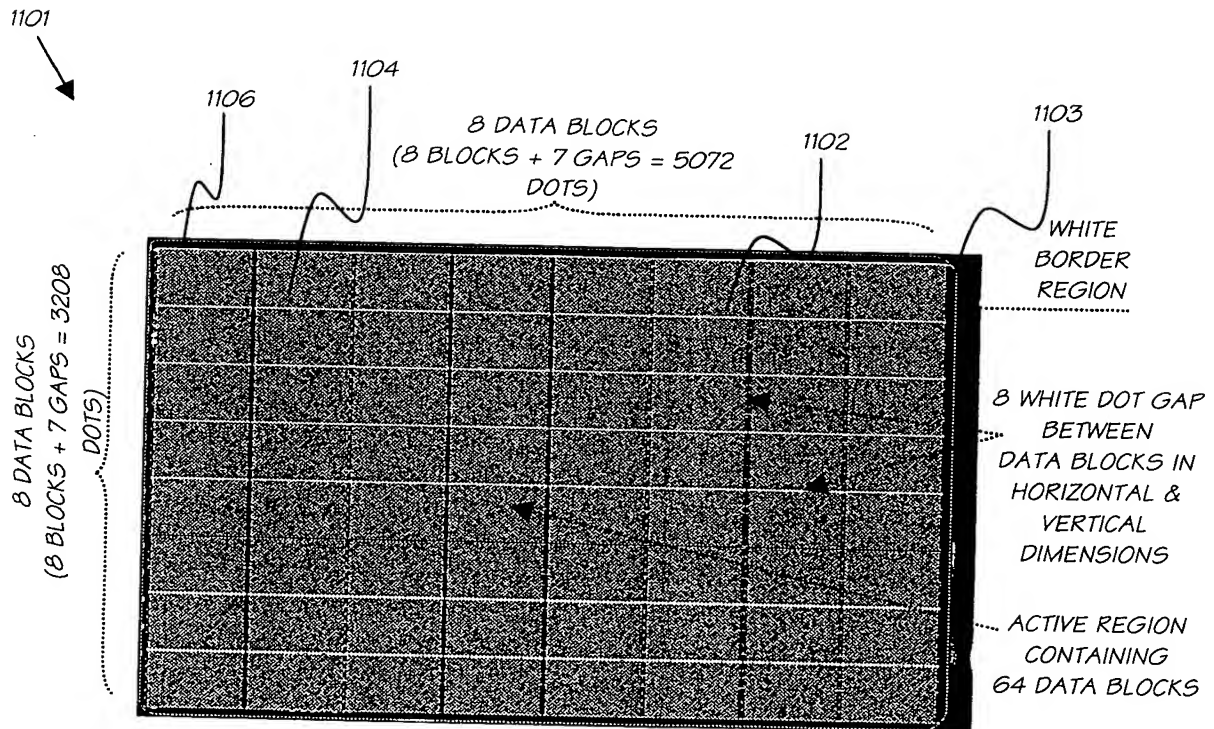


FIG. 48



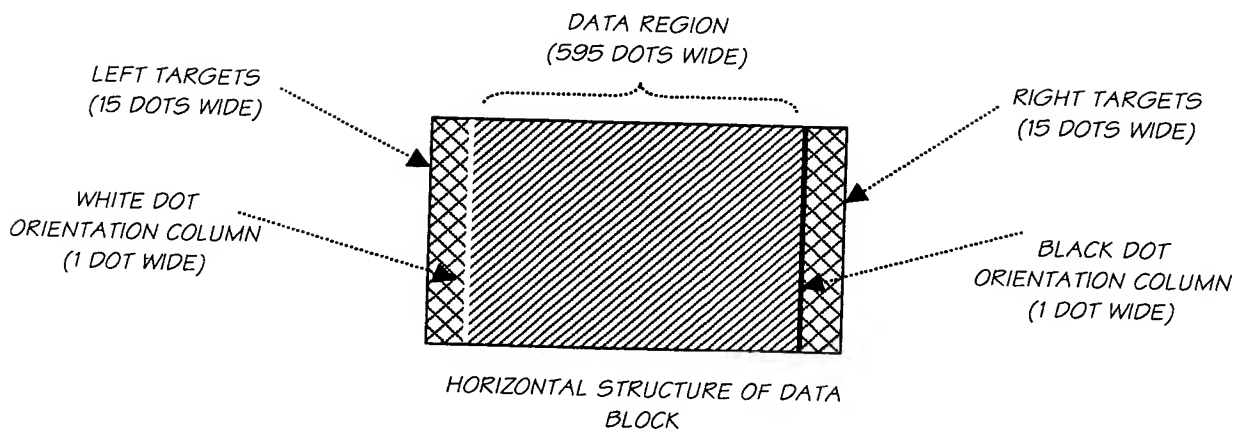
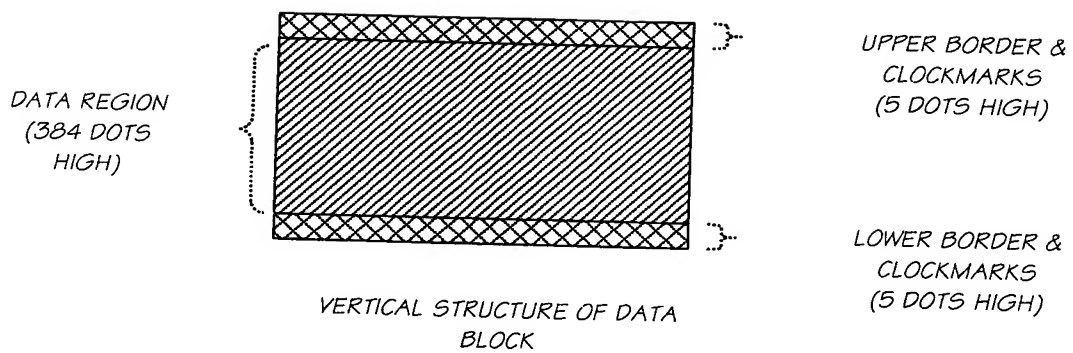
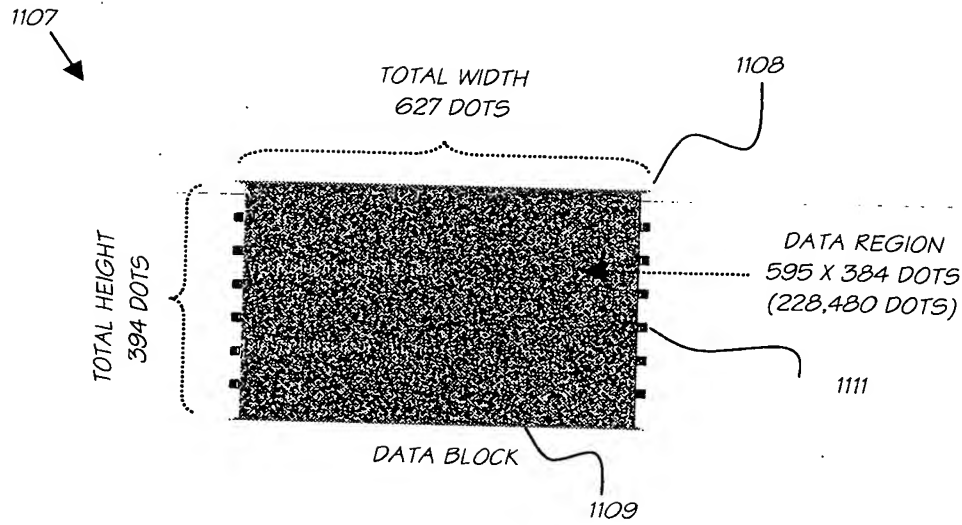
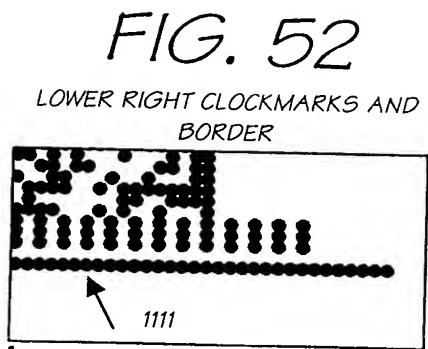
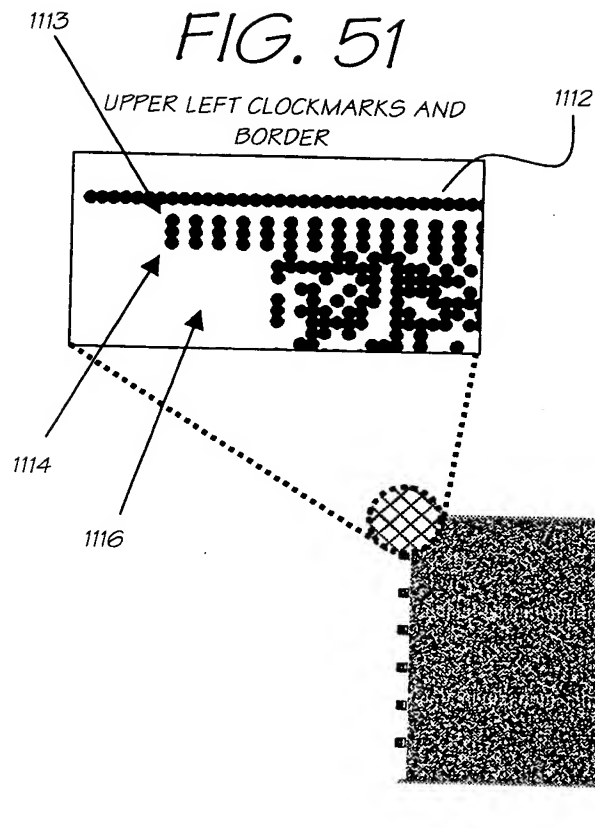


FIG. 49



**FIG. 50**

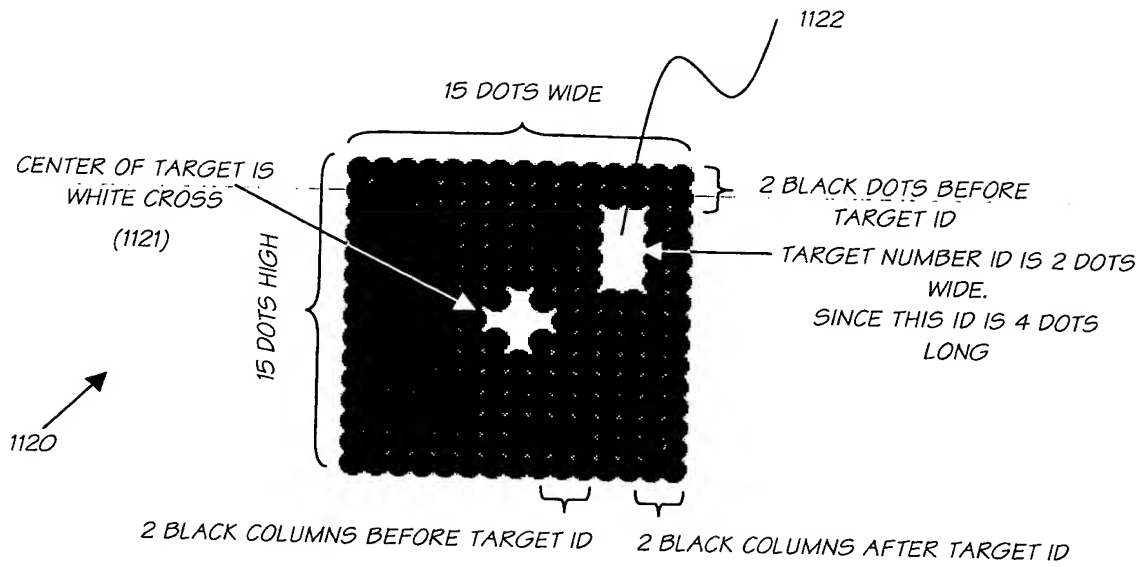


FIG. 53

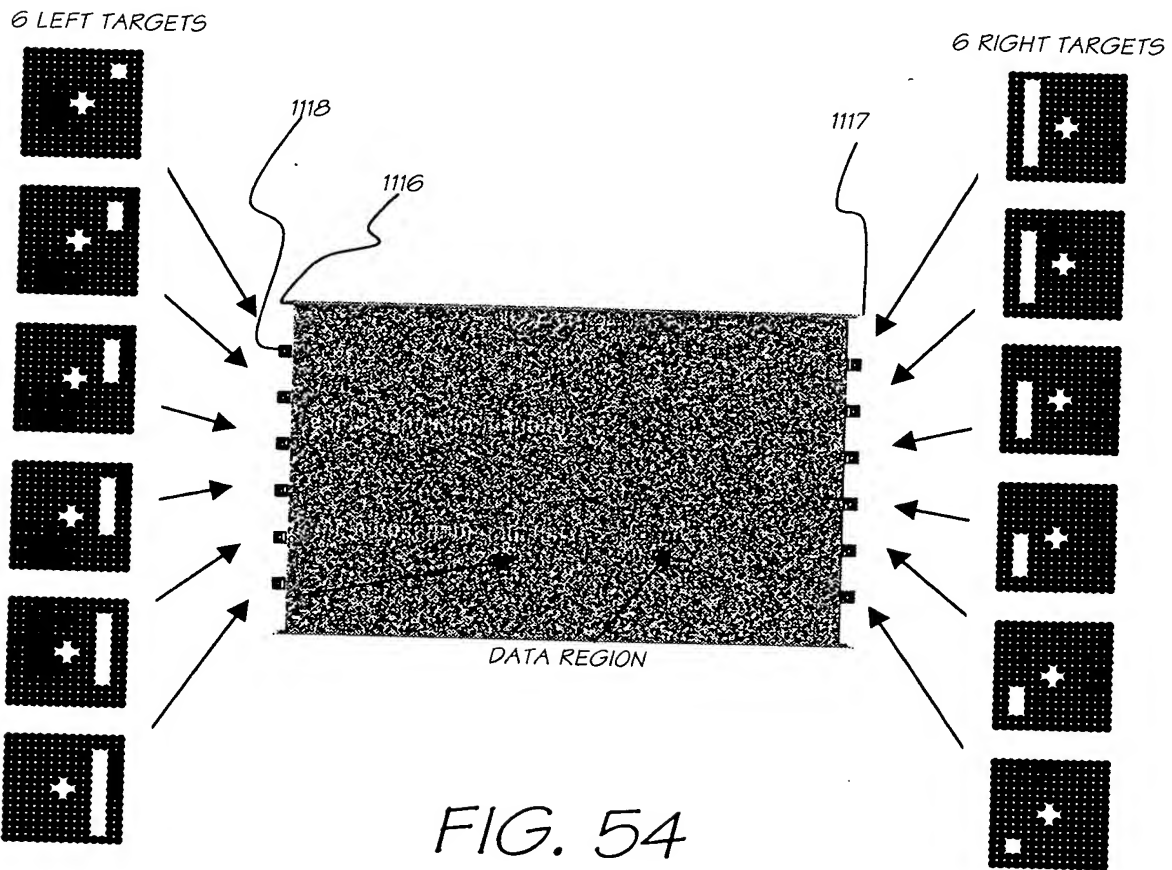


FIG. 54

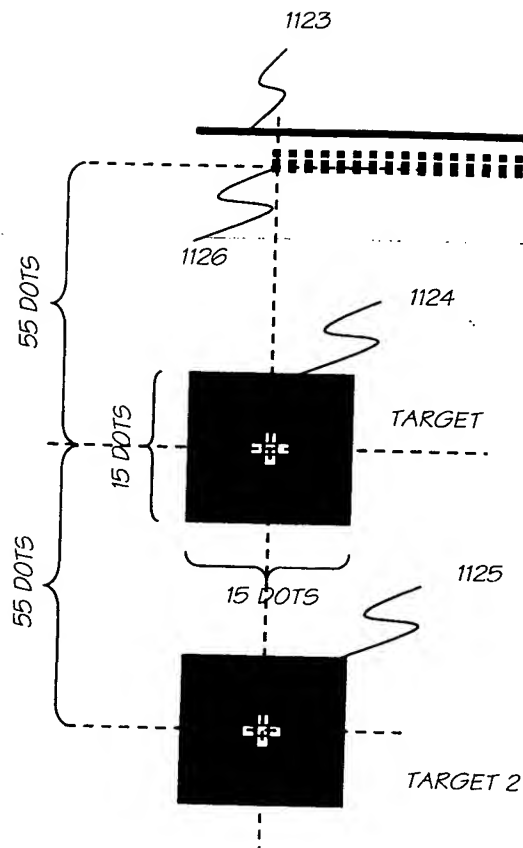


FIG. 55

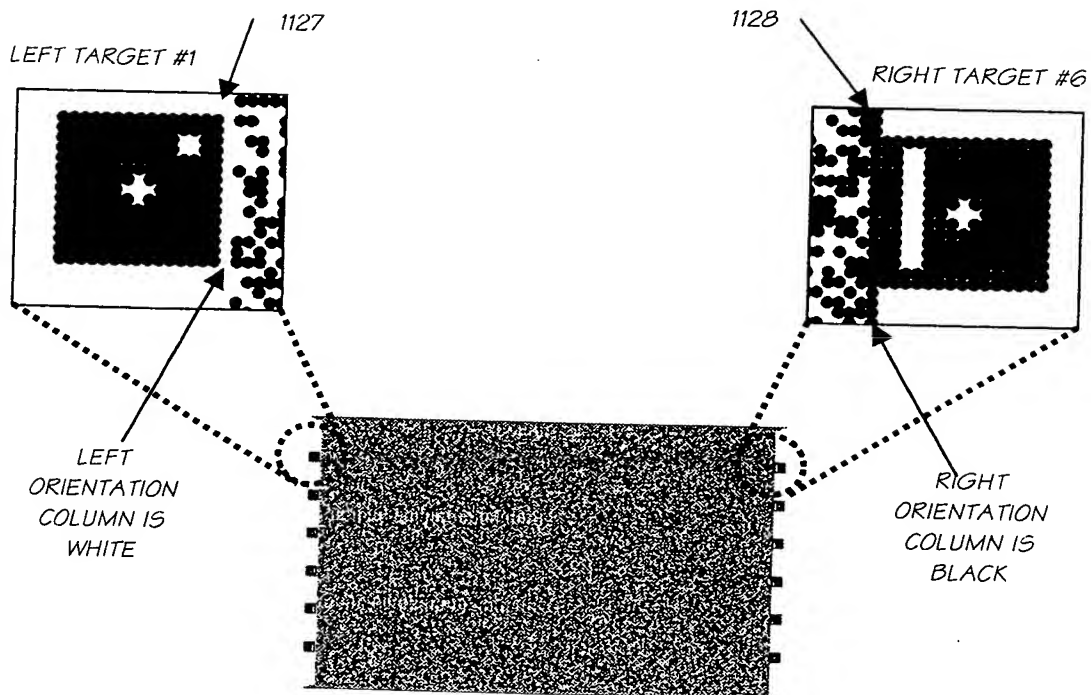


FIG. 56

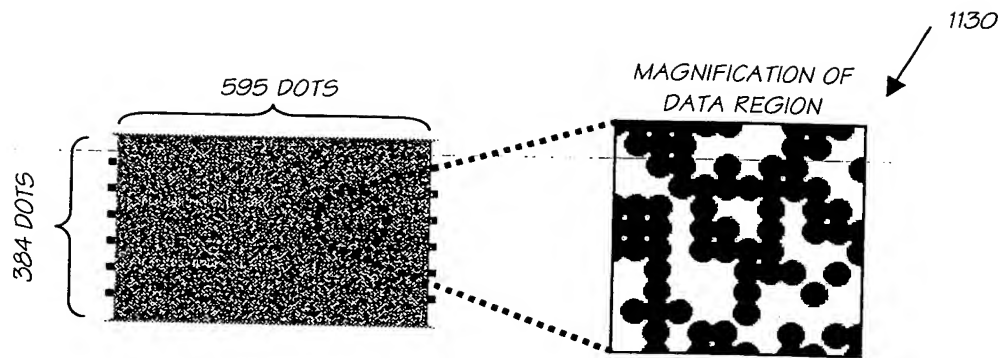


FIG. 57

00:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	32 COPIES OF THE 3 BYTE CONTROL INFORMATION
0C:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
18:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
24:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
30:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
3C:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
48:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
54:	4F 00 3D 4F 00 3D 4F 00 3D 4F 00 3D	
60:	00 00 00 00 00 00 00 00 00 00 00 00	RESERVED BYTES ARE 0
6C:	00 00 00 00 00 00 00 00 00 00 00 00	
78:	00 00 00 00 00 00 00 00 00 00 00 00	

FIG. 59

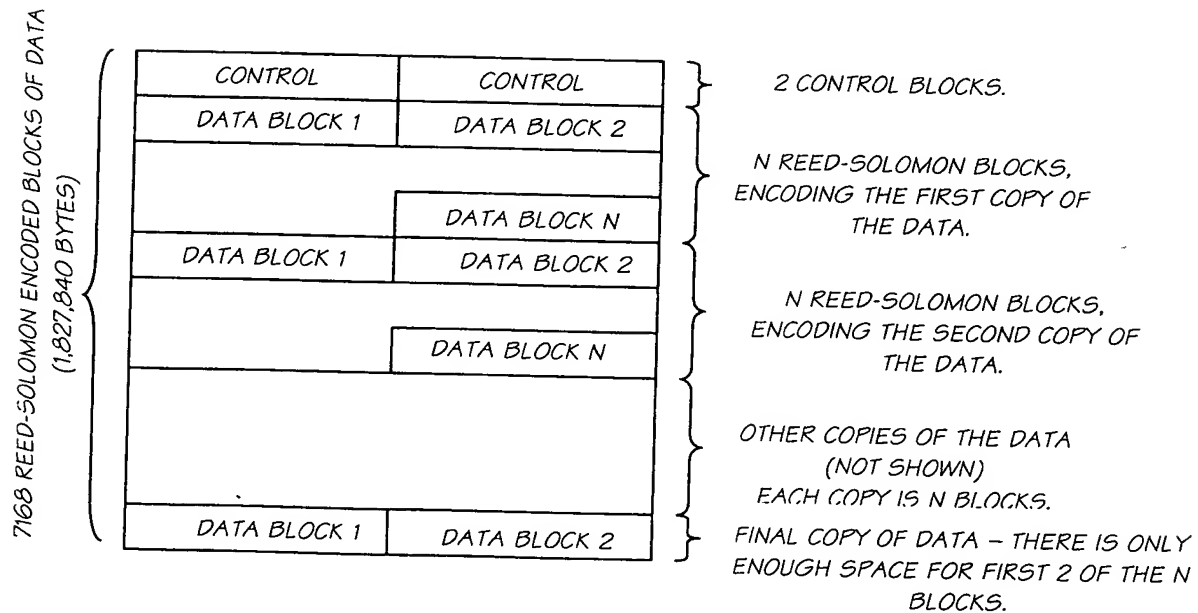


FIG. 58

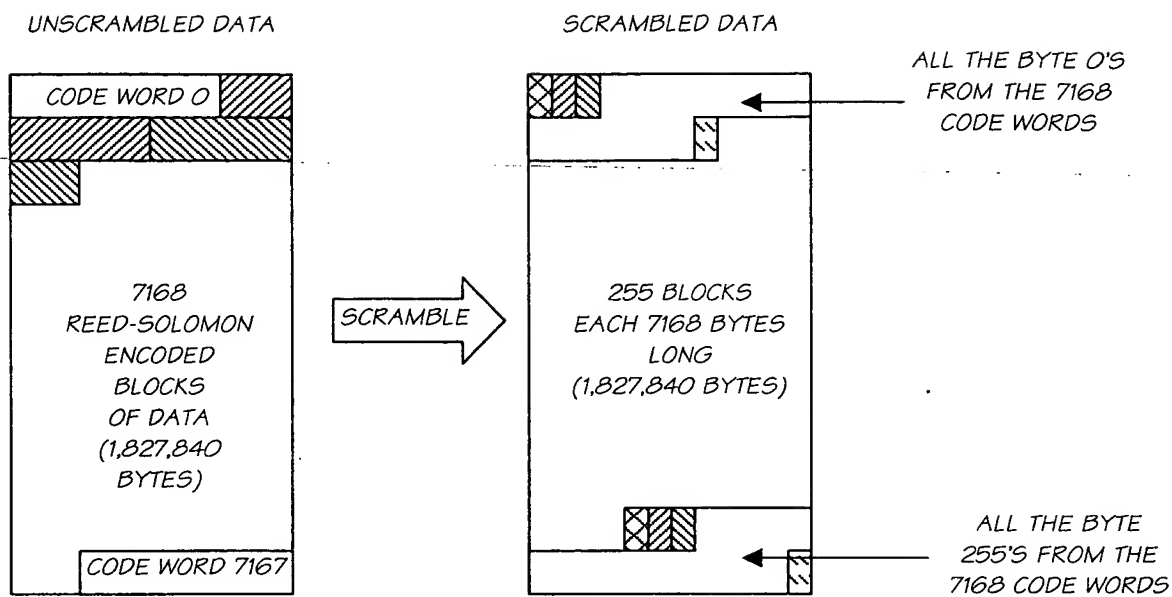


FIG. 60

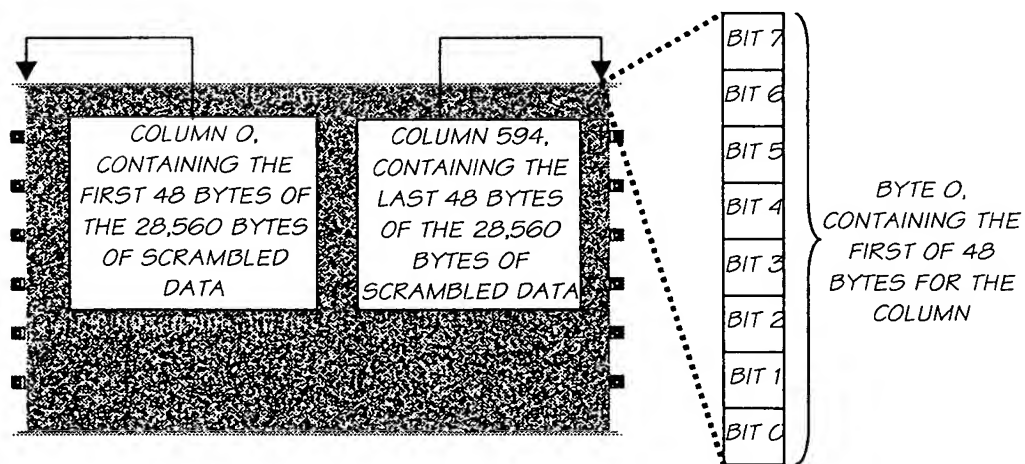


FIG. 61

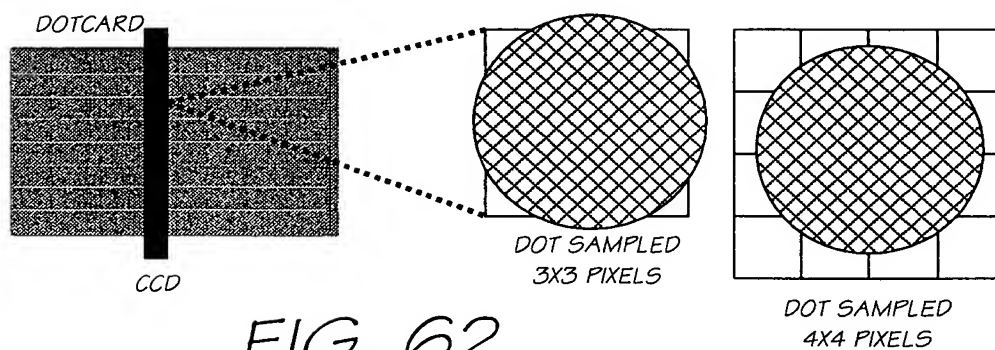


FIG. 62

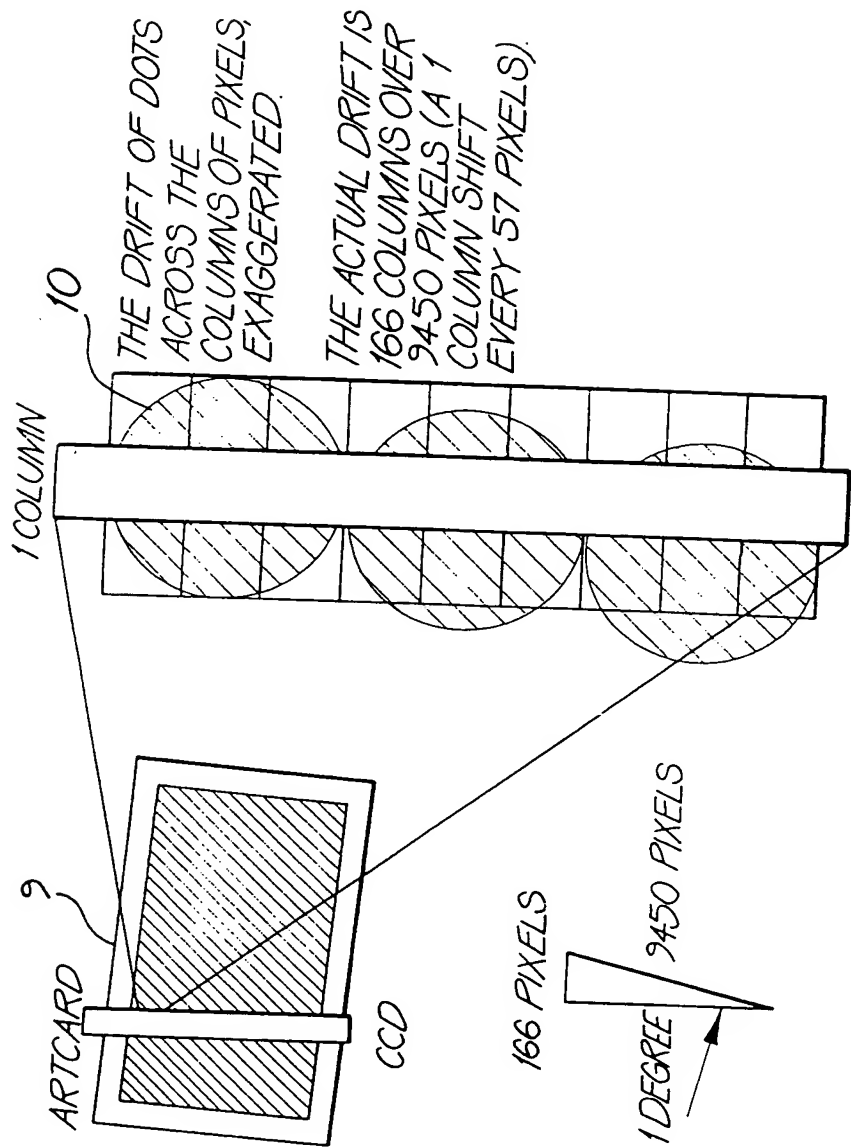


FIG. 63

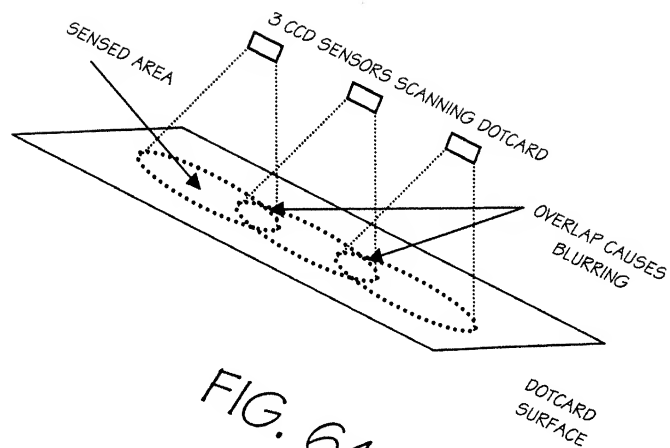


FIG. 64

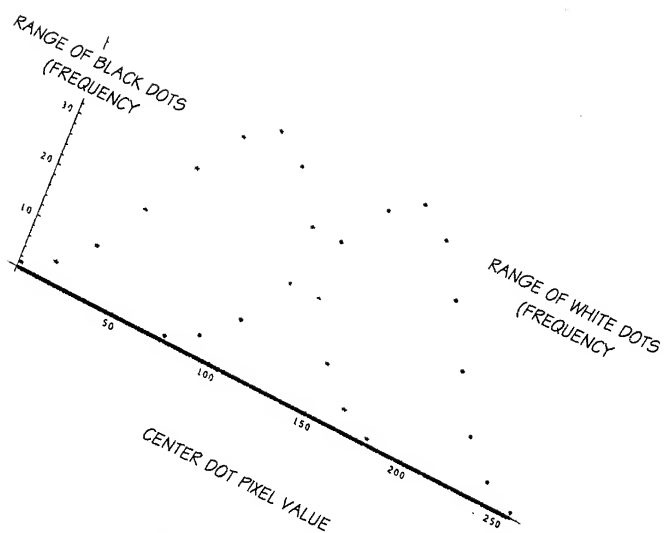


FIG. 65



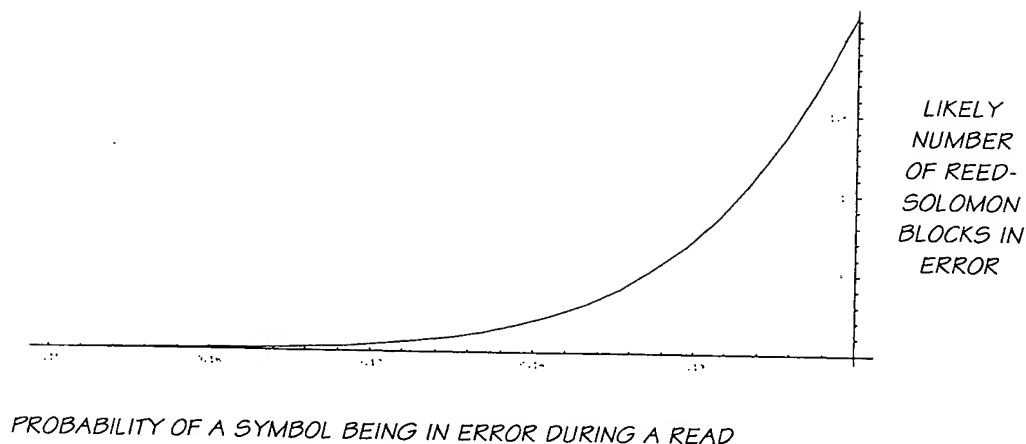
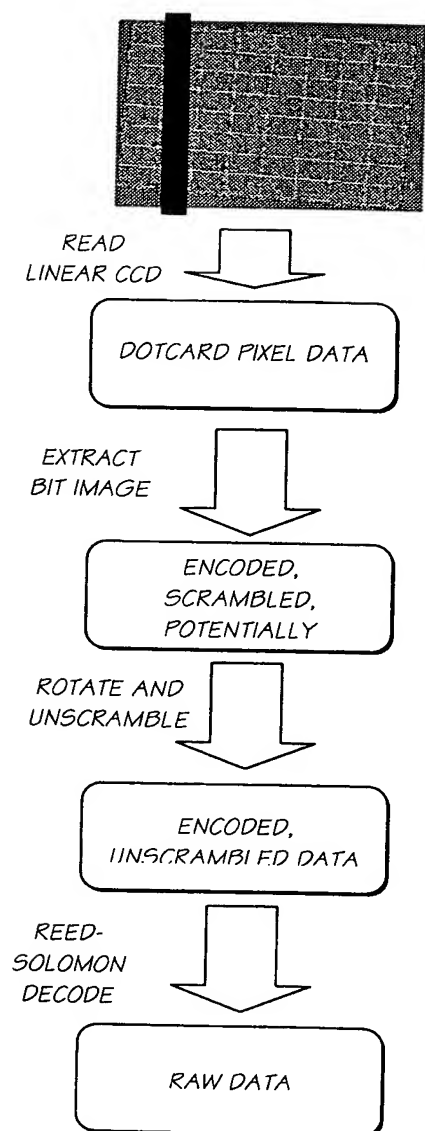


FIG. 66



APPROXIMATE DATA SIZES FOR 1600 DPI DOTCARD

86MM + 1MM IN HORIZONTAL DIMENSION FOR  $P$  ROTATION = 87MM  
 87MM = 16,252 SCANLINES  
 16,440 SCANLINES @ 11,000 PIXELS PER SCANLINE = 180,840,000 PIXELS  
 180,840,000 PIXELS @ 1 BYTE PER PIXEL = 180,840,000 BYTES  
 = 172.5 MB

64 DATA BLOCKS, EACH CONTAINING 597 COLUMNS (595 DATA REGION COLUMNS AND 2 ORIENTATION COLUMNS), @ 48 BYTES PER COLUMN = 28,656 BYTES PER DATA BLOCK FOR A TOTAL OF 1,833,984 BYTES.

64 DATA BLOCKS, EACH CONTAINING 112 ENCODED REED SOLOMON BLOCKS, @ 255 BYTES PER REED SOLOMON BLOCK FOR A TOTAL OF 1,827,840 BYTES.

DECODED DATA, WITH A MAXIMUM SIZE OF 910,082 BYTES.  
 (64 X 112 X 127 - (2 CONTROL BLOCKS @ 127 BYTES))

FIG. 67

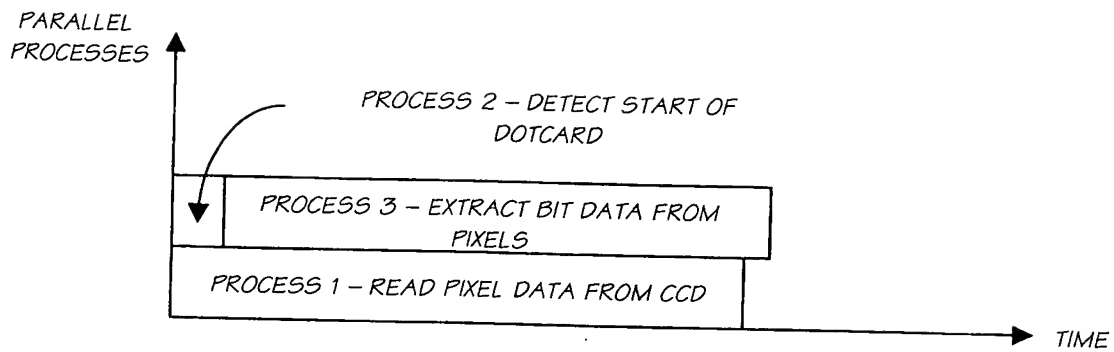


FIG. 68

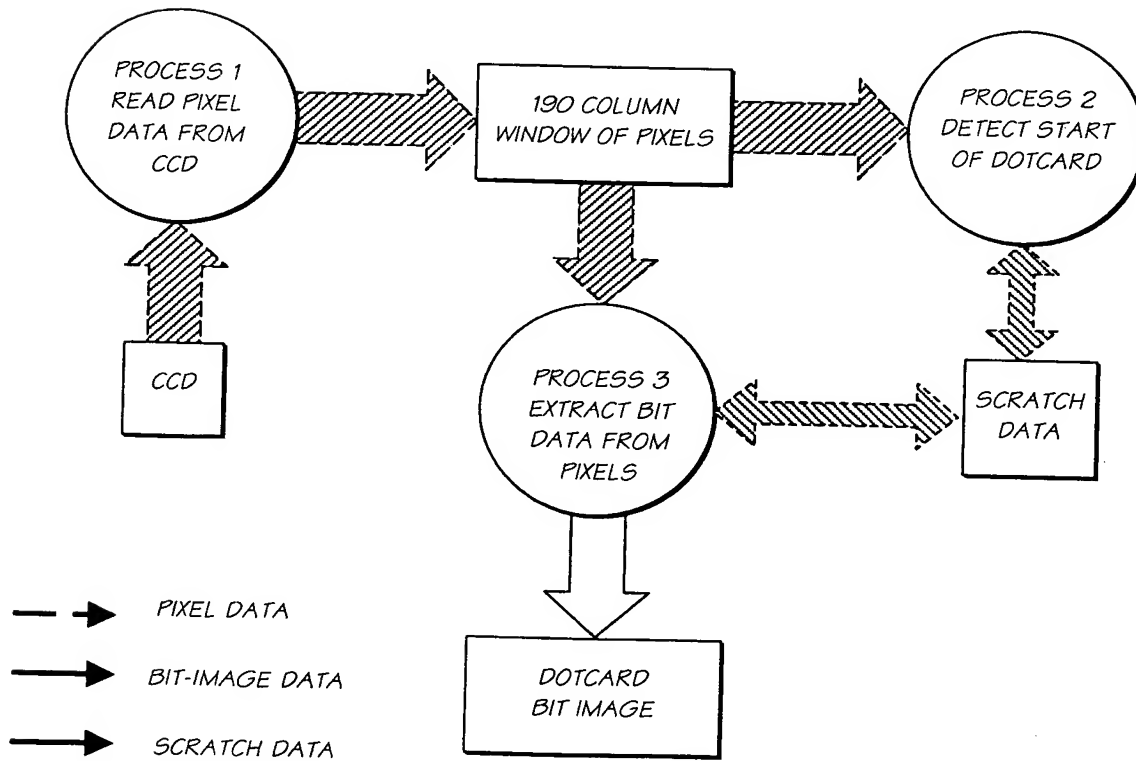


FIG. 69

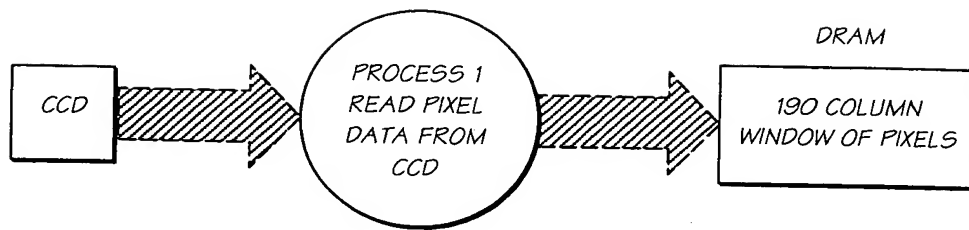


FIG. 70

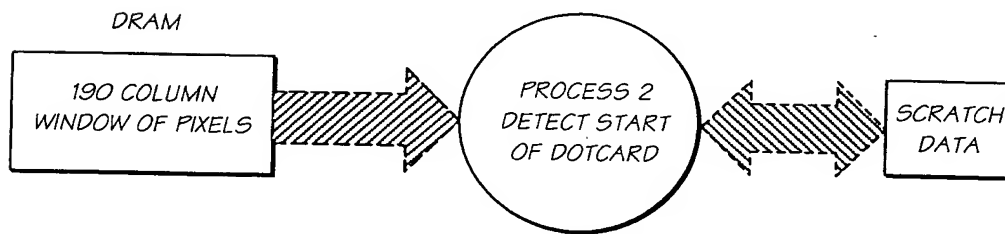


FIG. 71

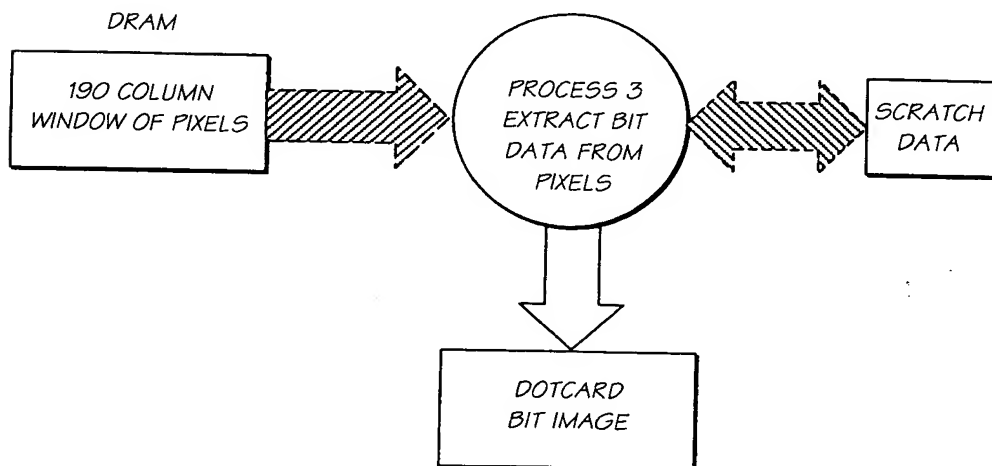


FIG. 72

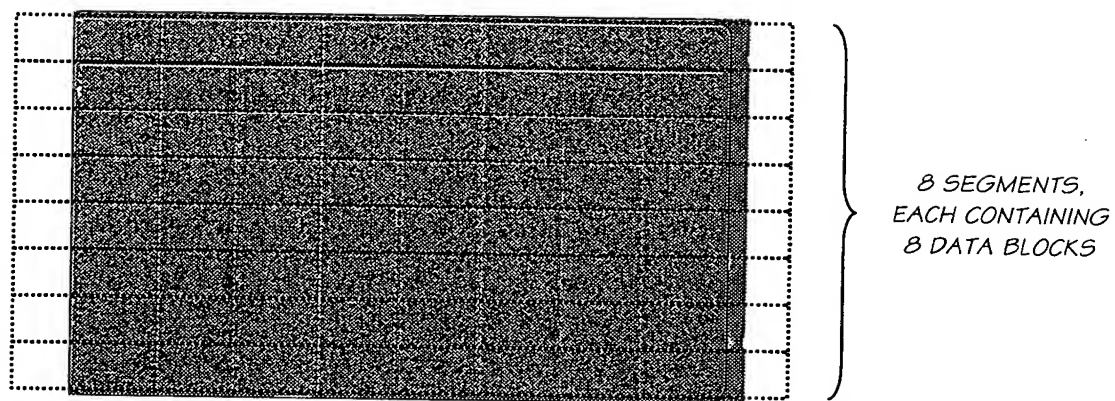


FIG. 73

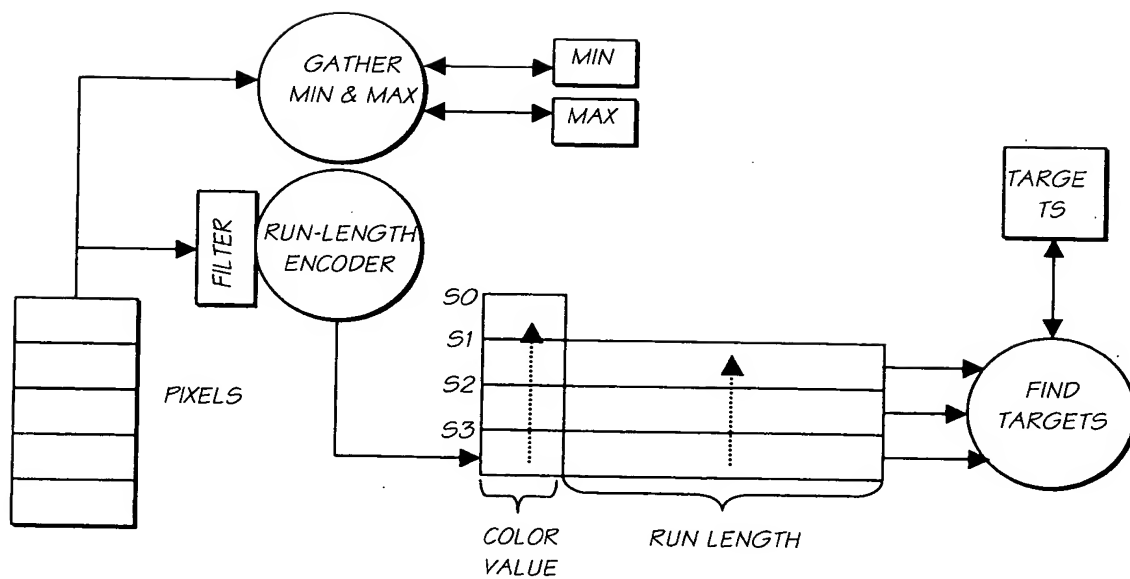


FIG. 74

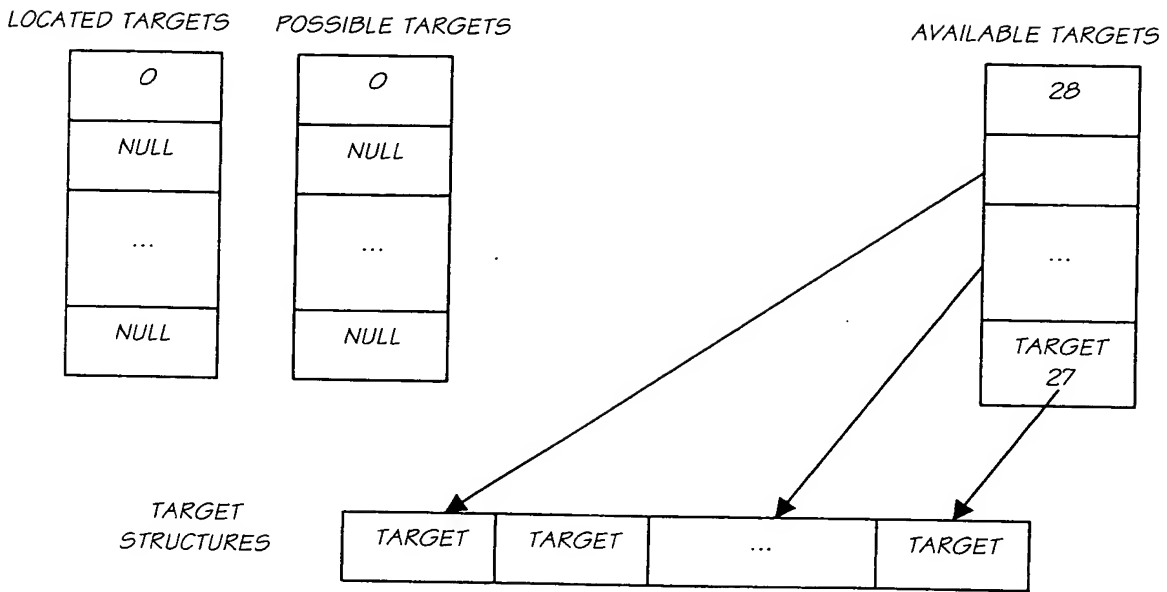
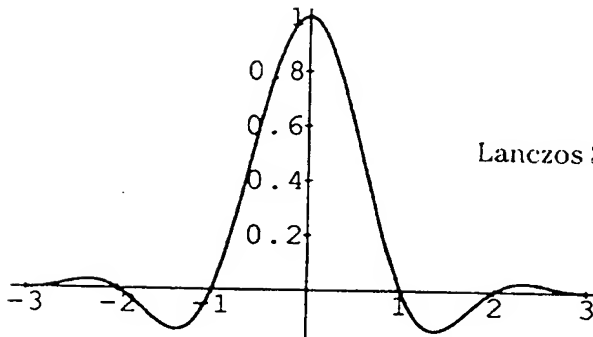


FIG. 75



$$\text{Lanczos } 3(x) = \begin{cases} \frac{\sin(\pi x)}{\pi x} \frac{\sin\left(\frac{\pi x}{3}\right)}{\frac{x}{3}}, & |x| < 3 \\ 0, & |x| \geq 3 \end{cases}$$

FIG. 76

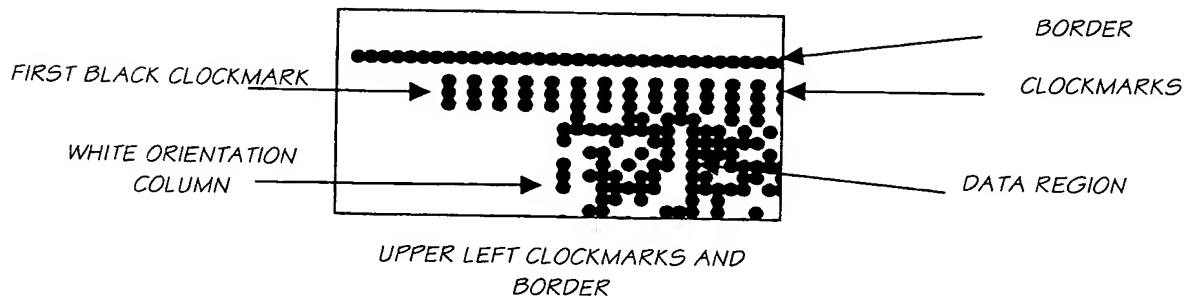


FIG. 77

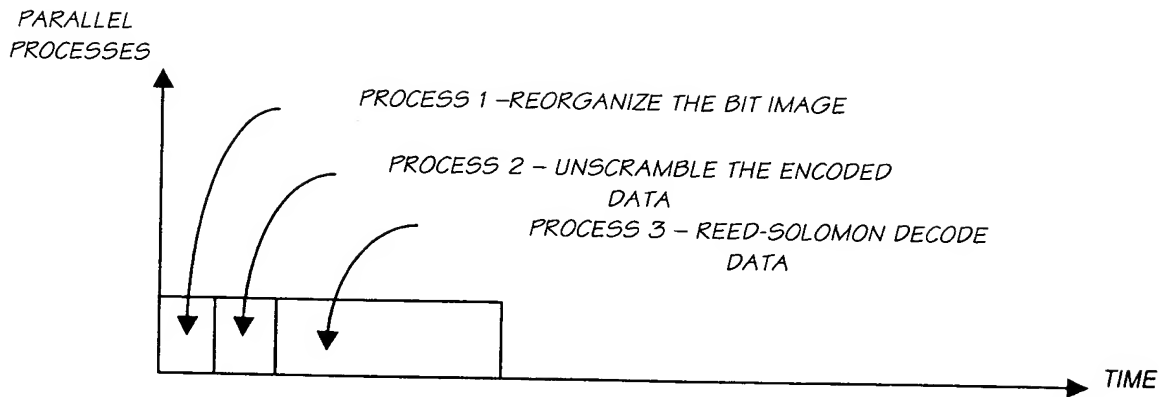


FIG. 78

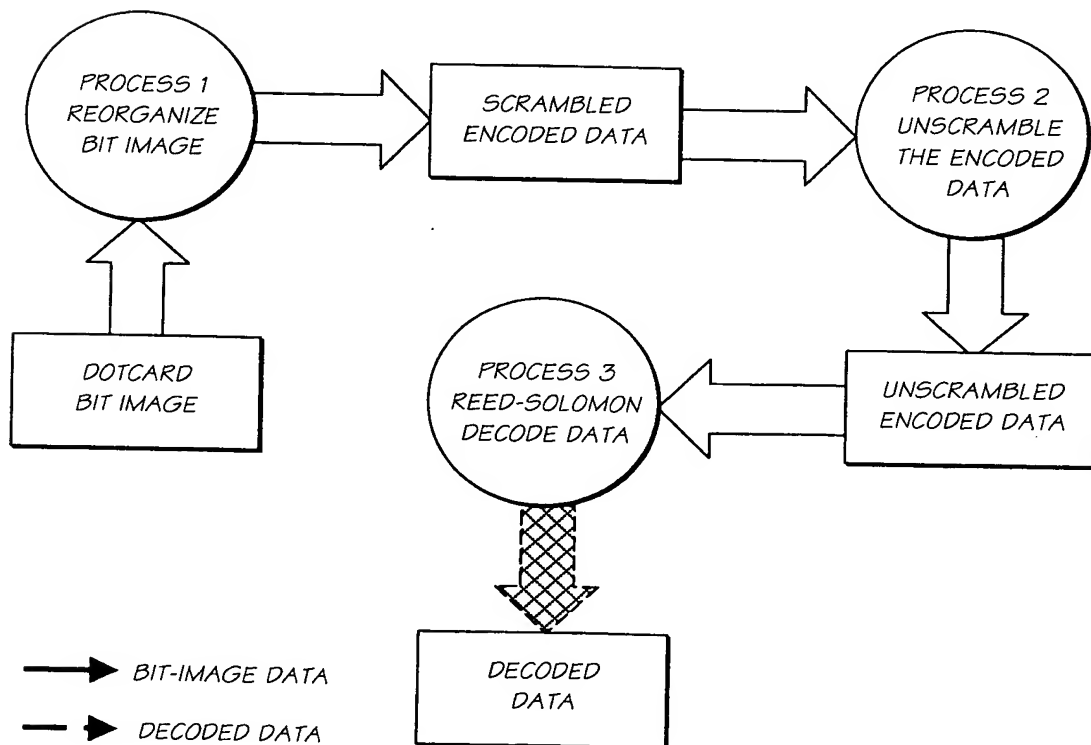


FIG. 79

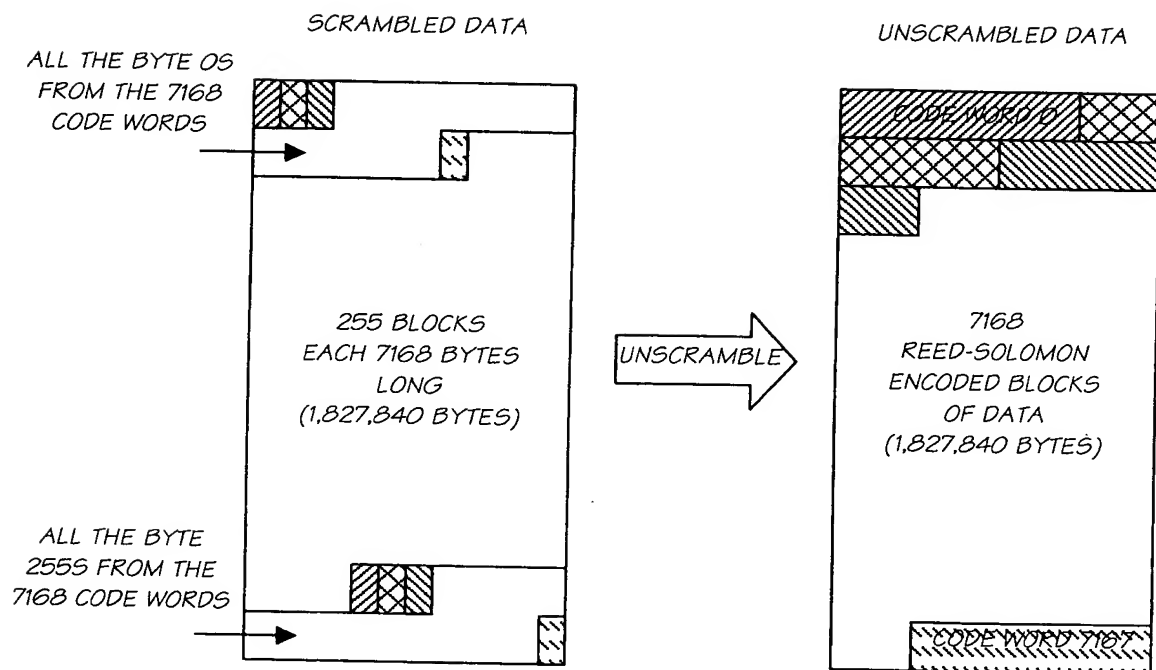


FIG. 80

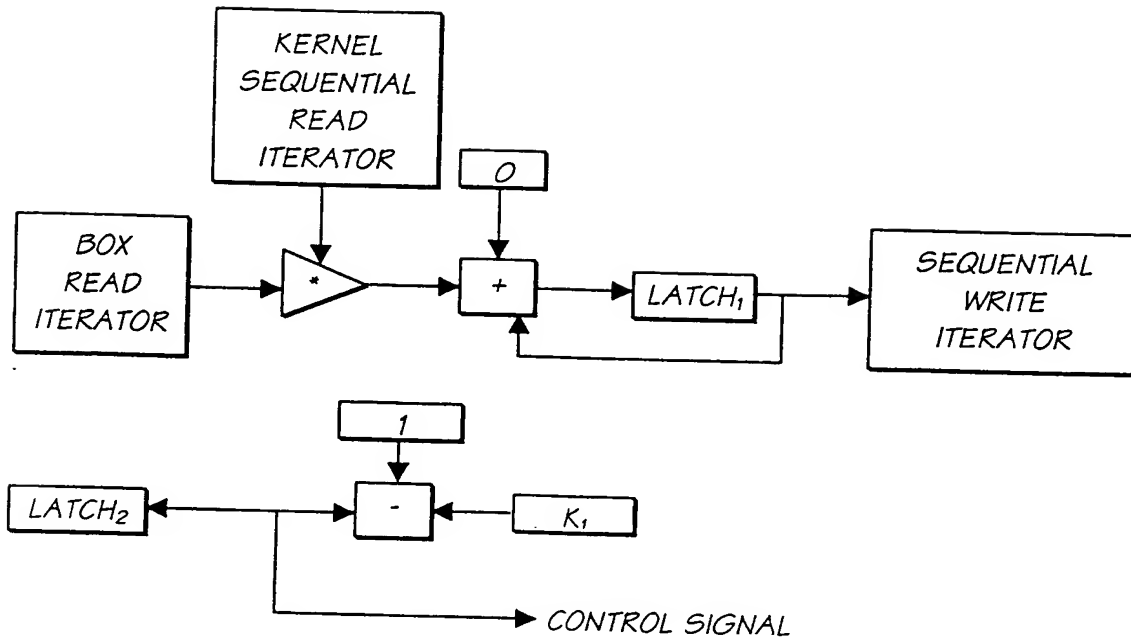


FIG. 81

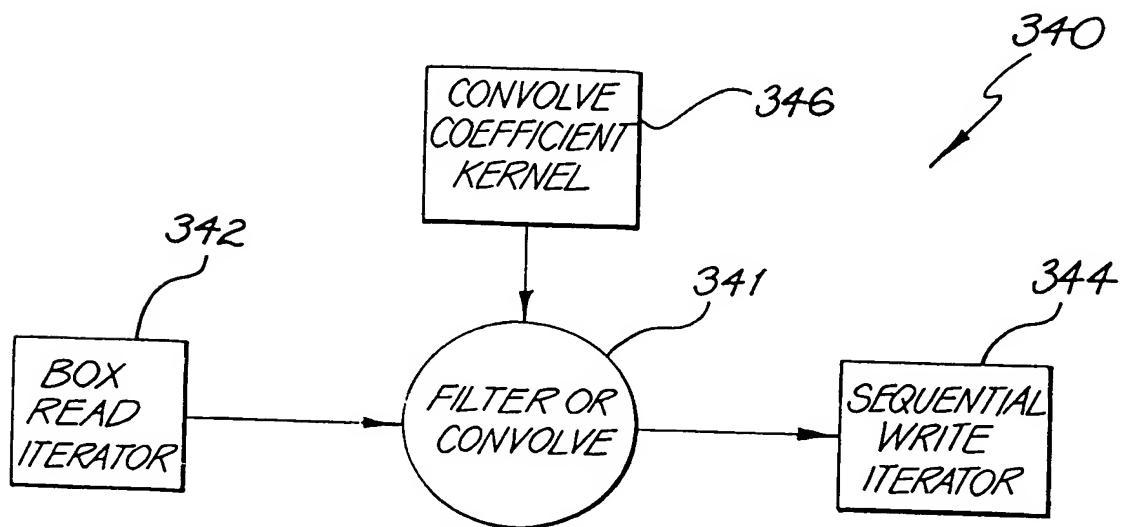


FIG. 82



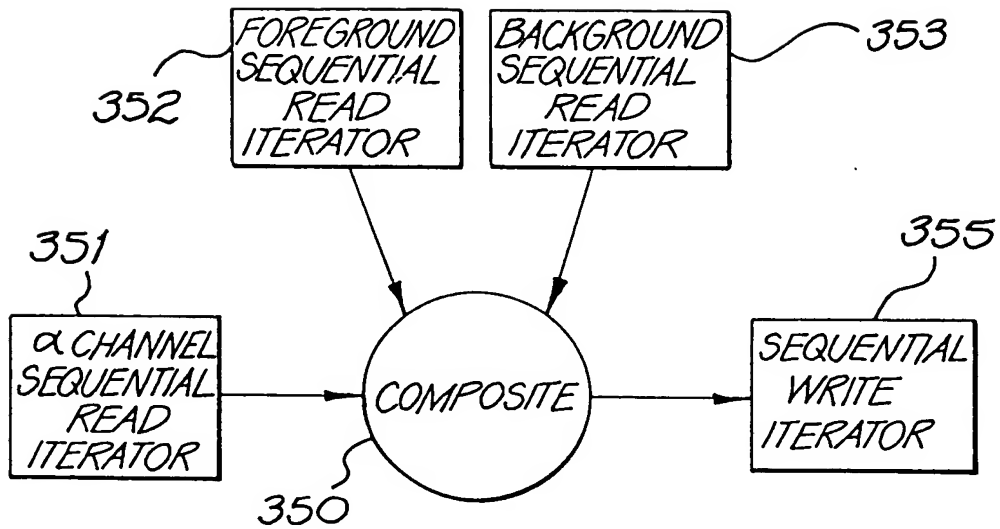


FIG. 83

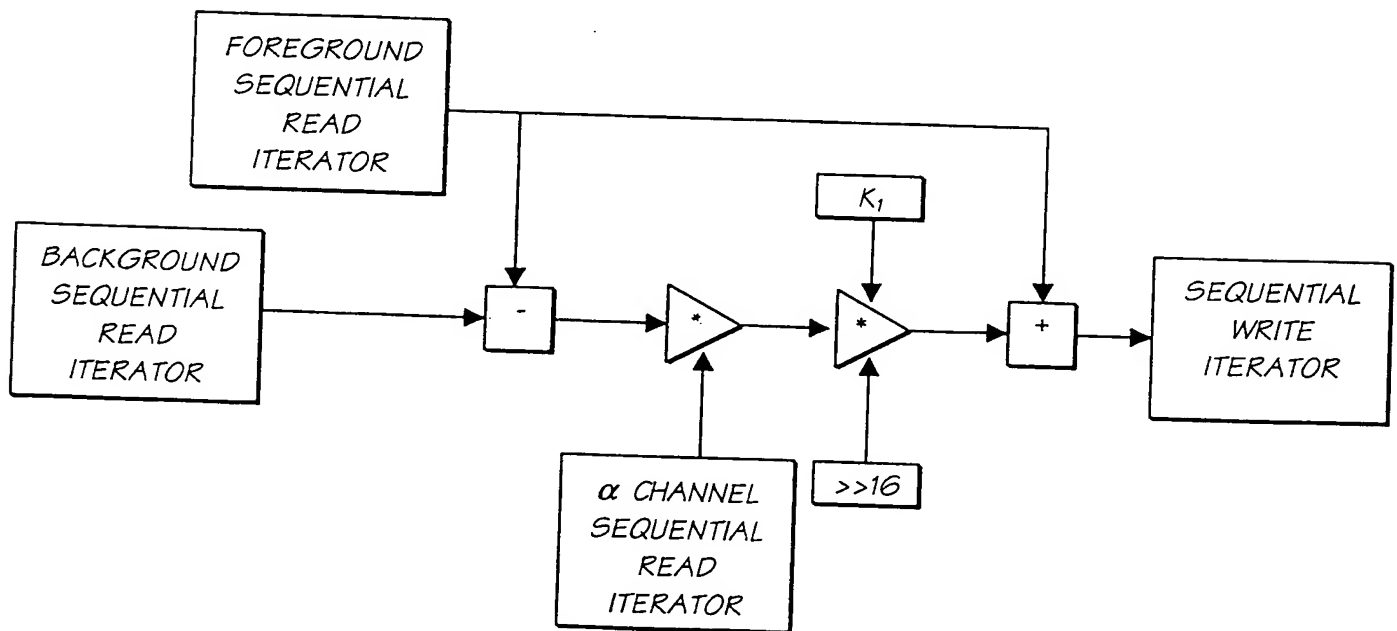


FIG. 84

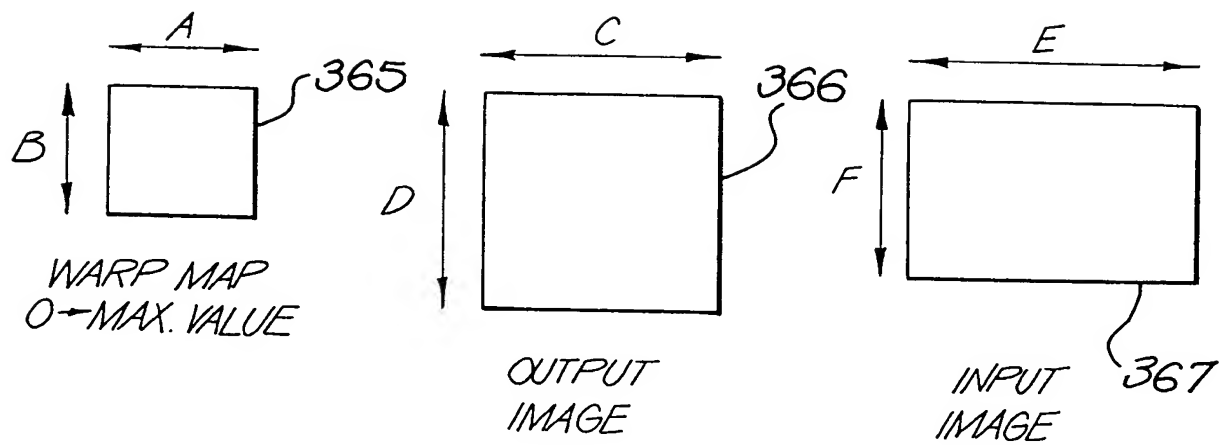


FIG. 85

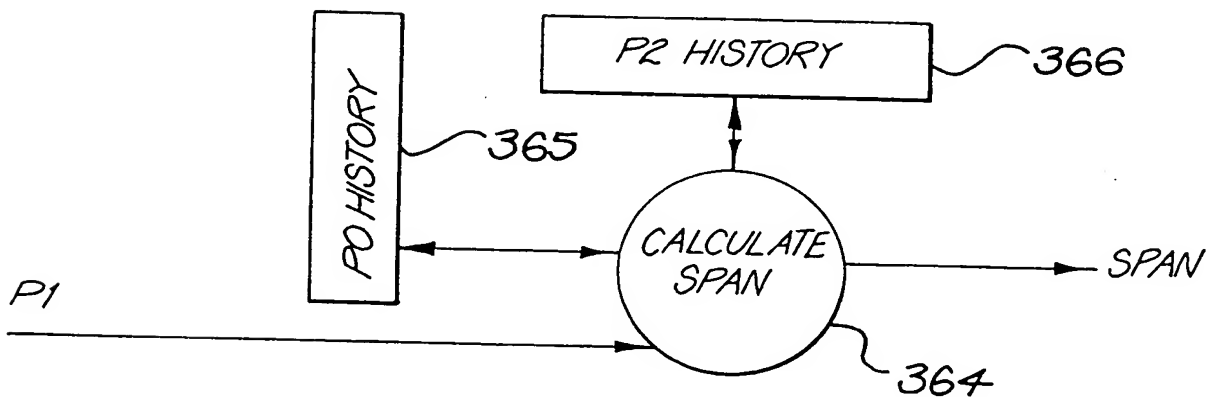


FIG. 86

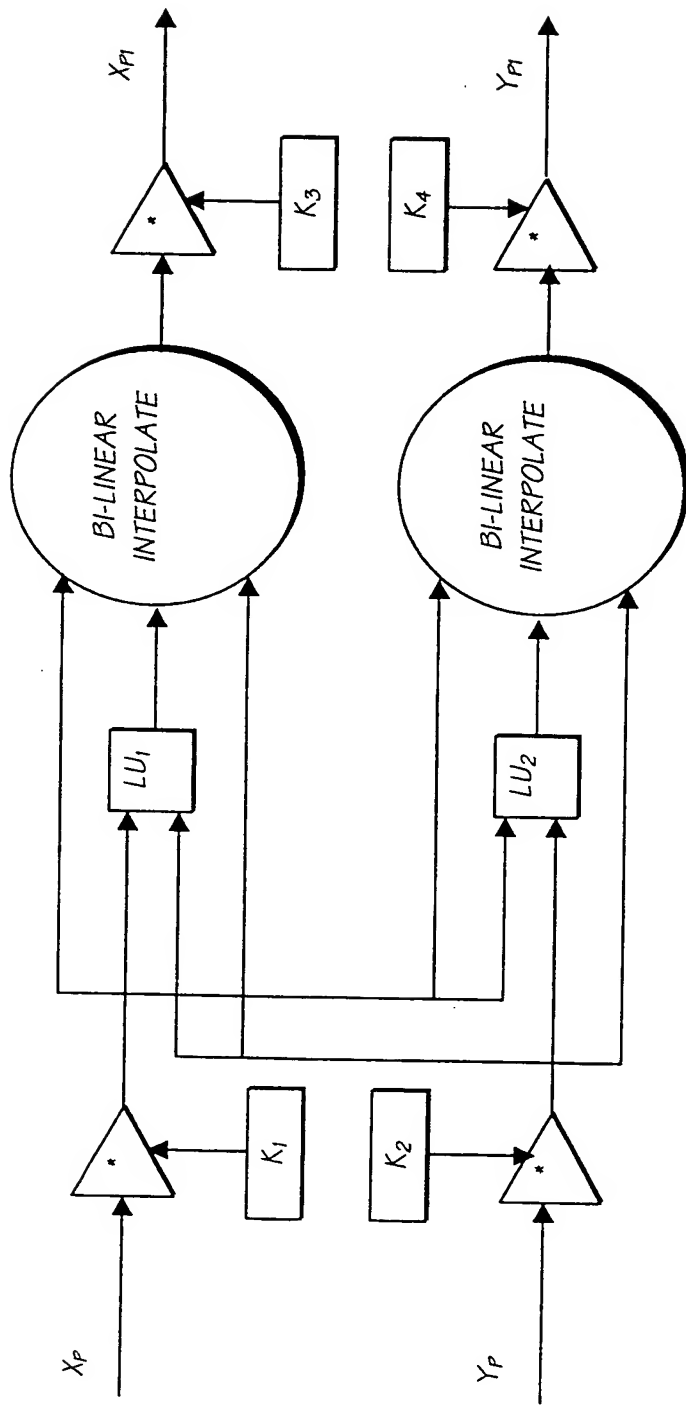


FIG. 87

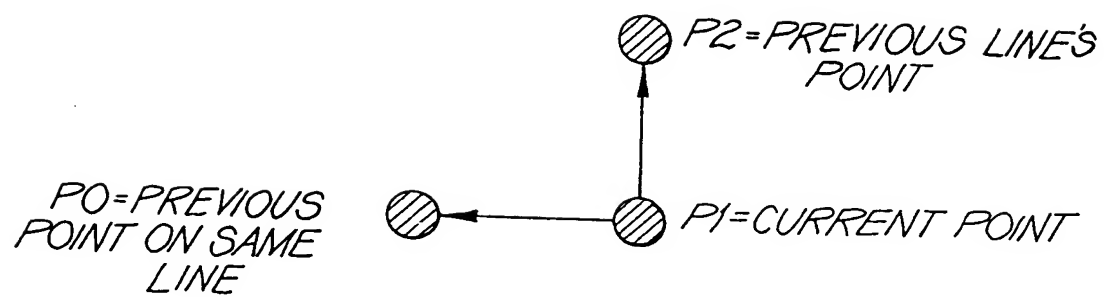


FIG. 88

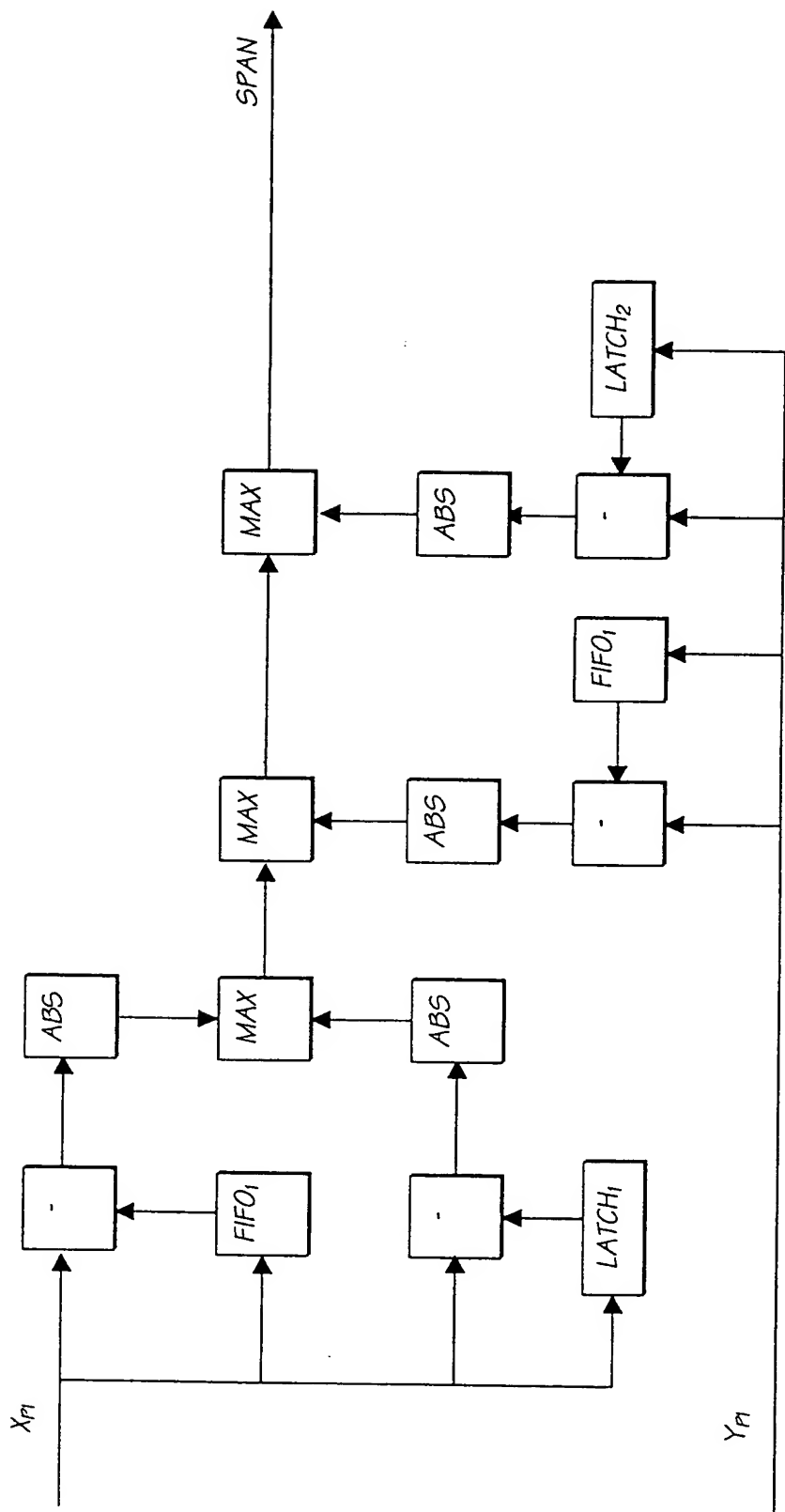


FIG. 89

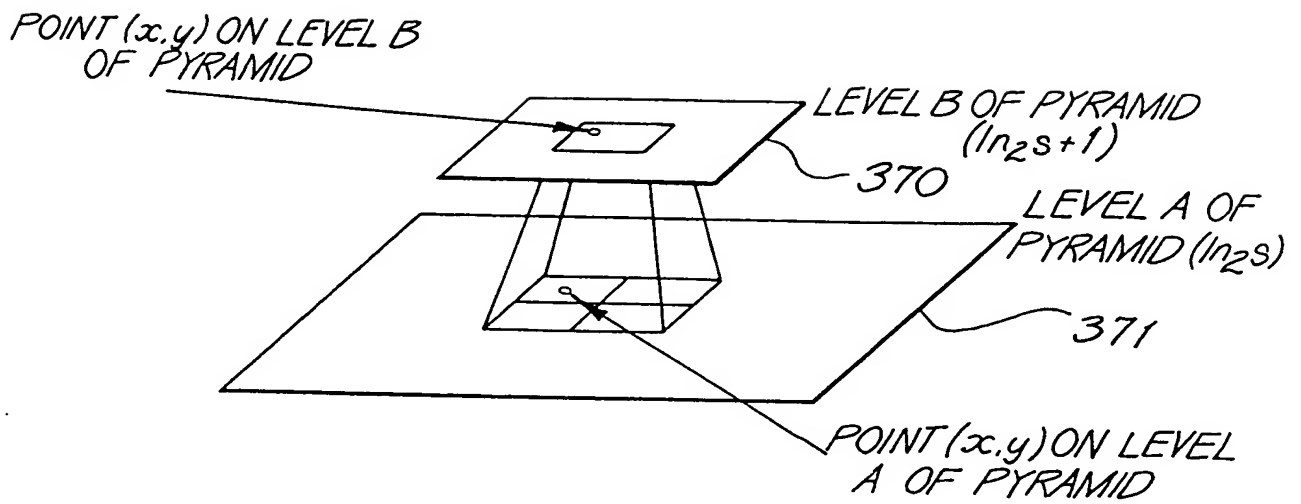


FIG. 90

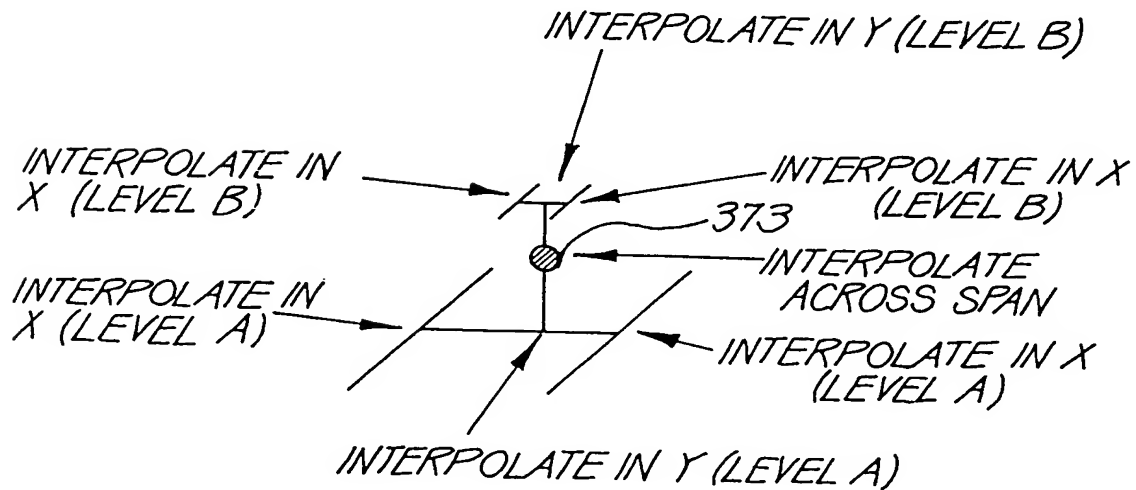


FIG. 91

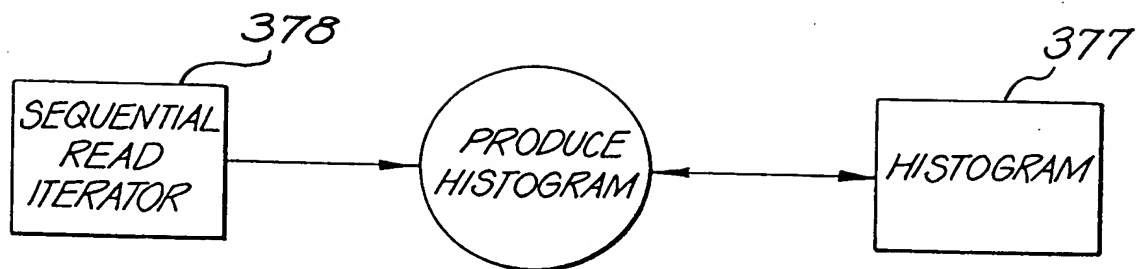


FIG. 92

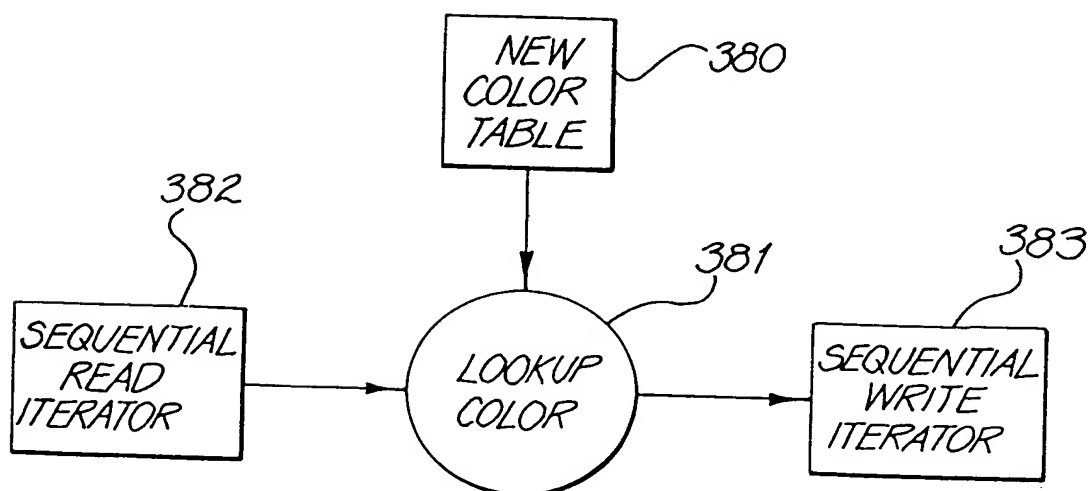


FIG. 93

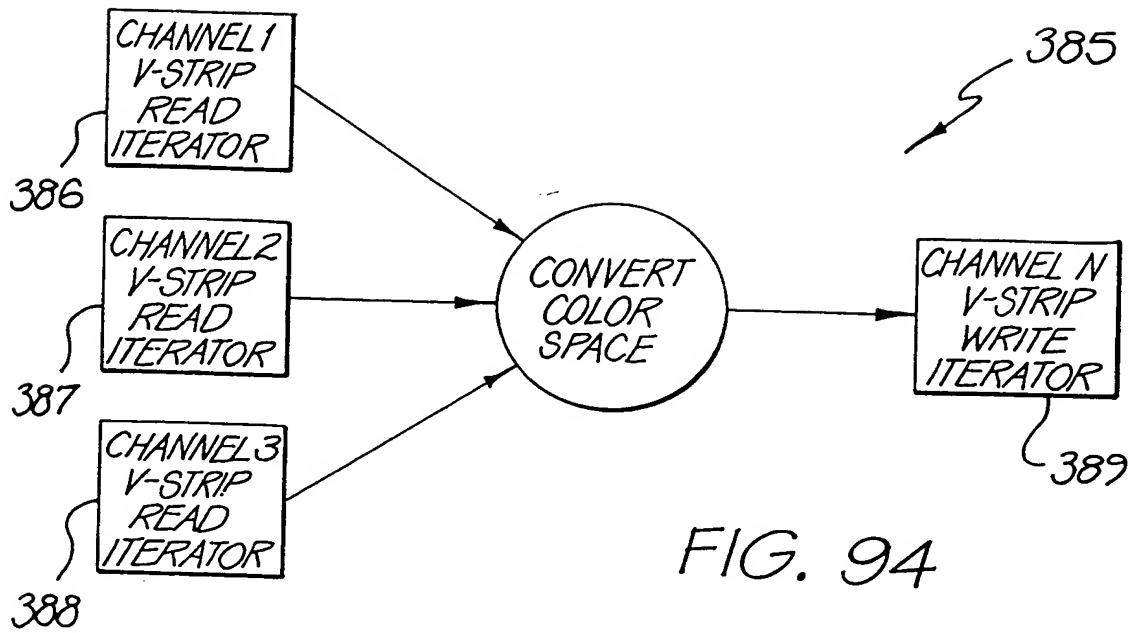


FIG. 94

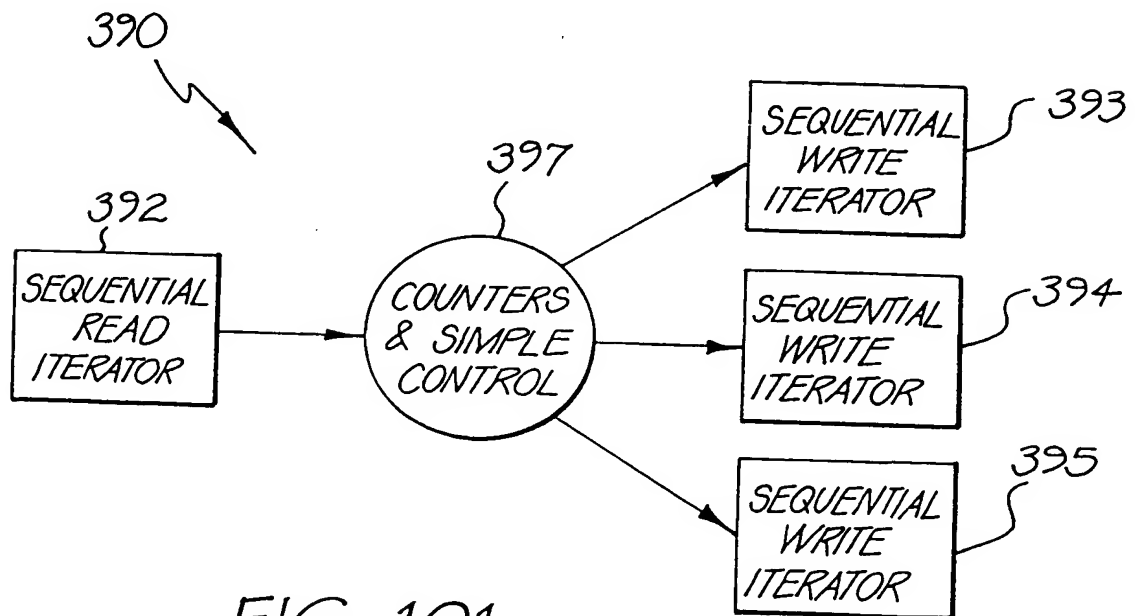


FIG. 101



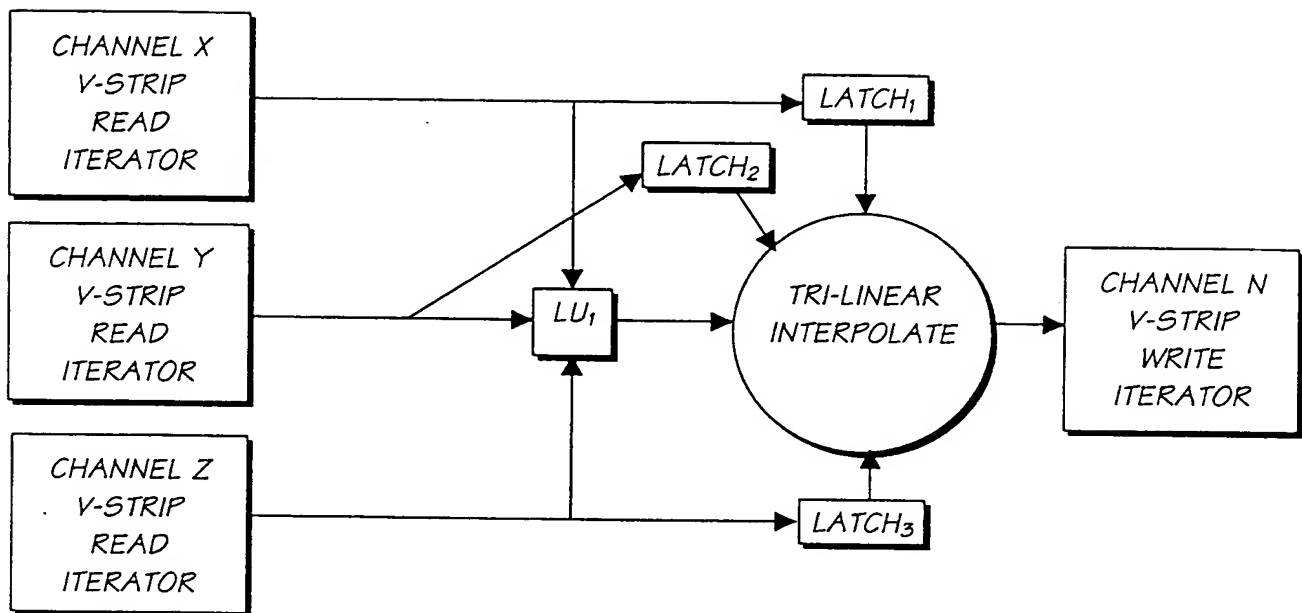


FIG. 95

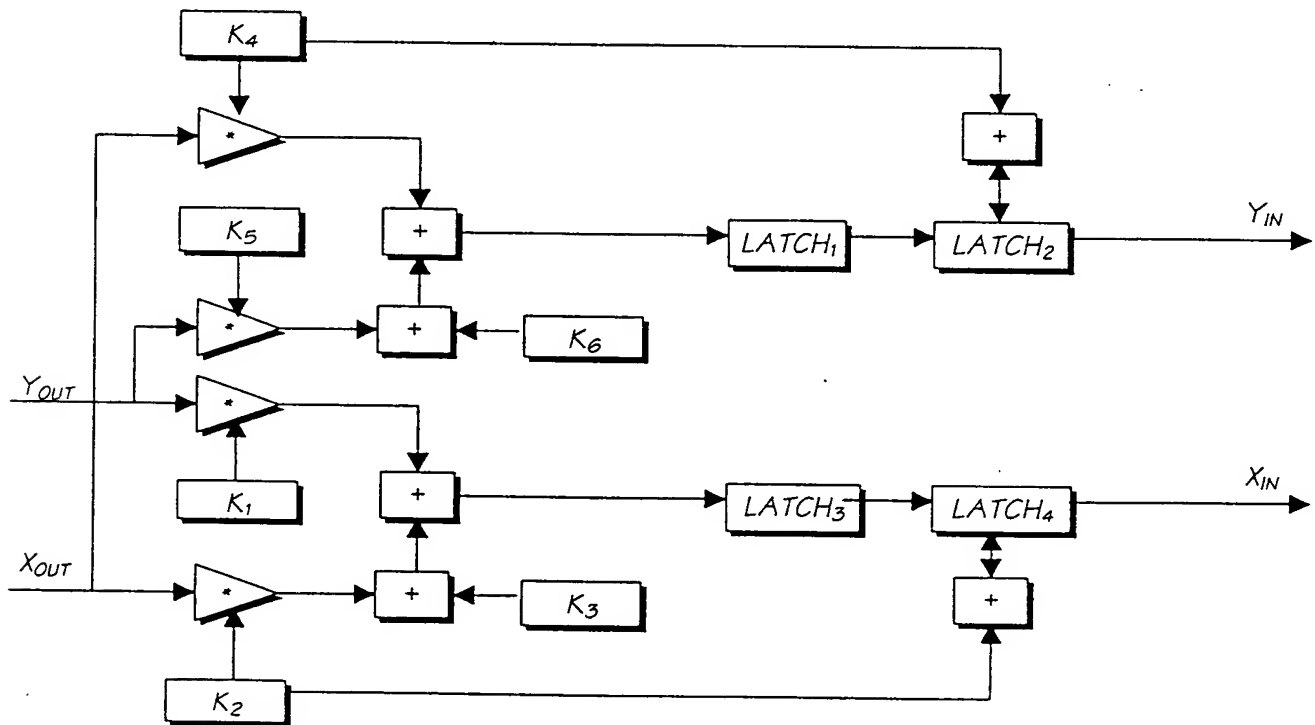


FIG. 96

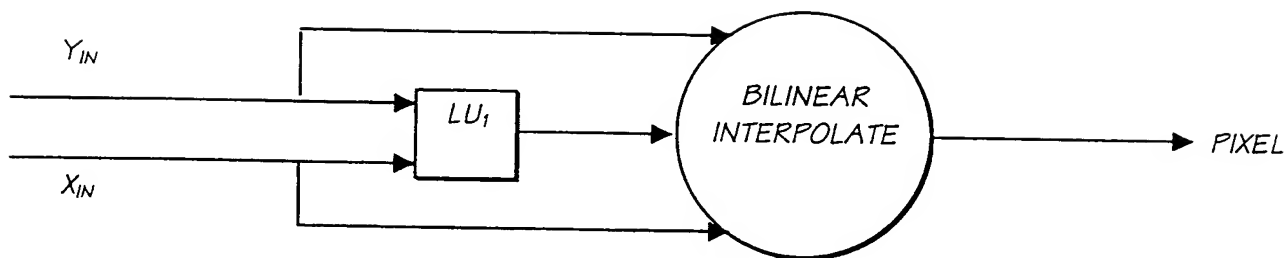


FIG. 97

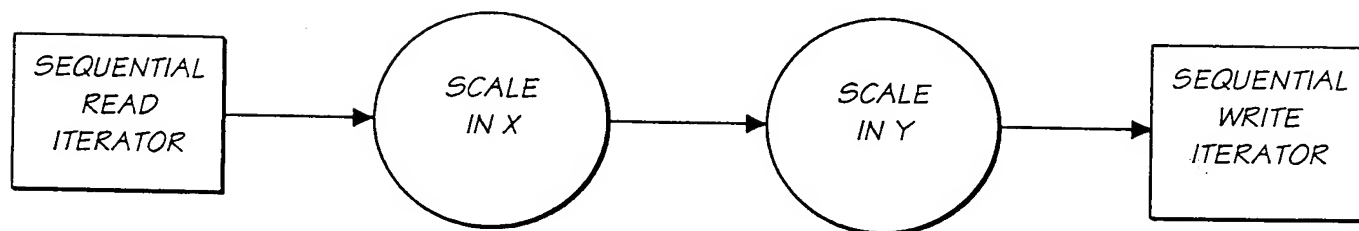


FIG. 98

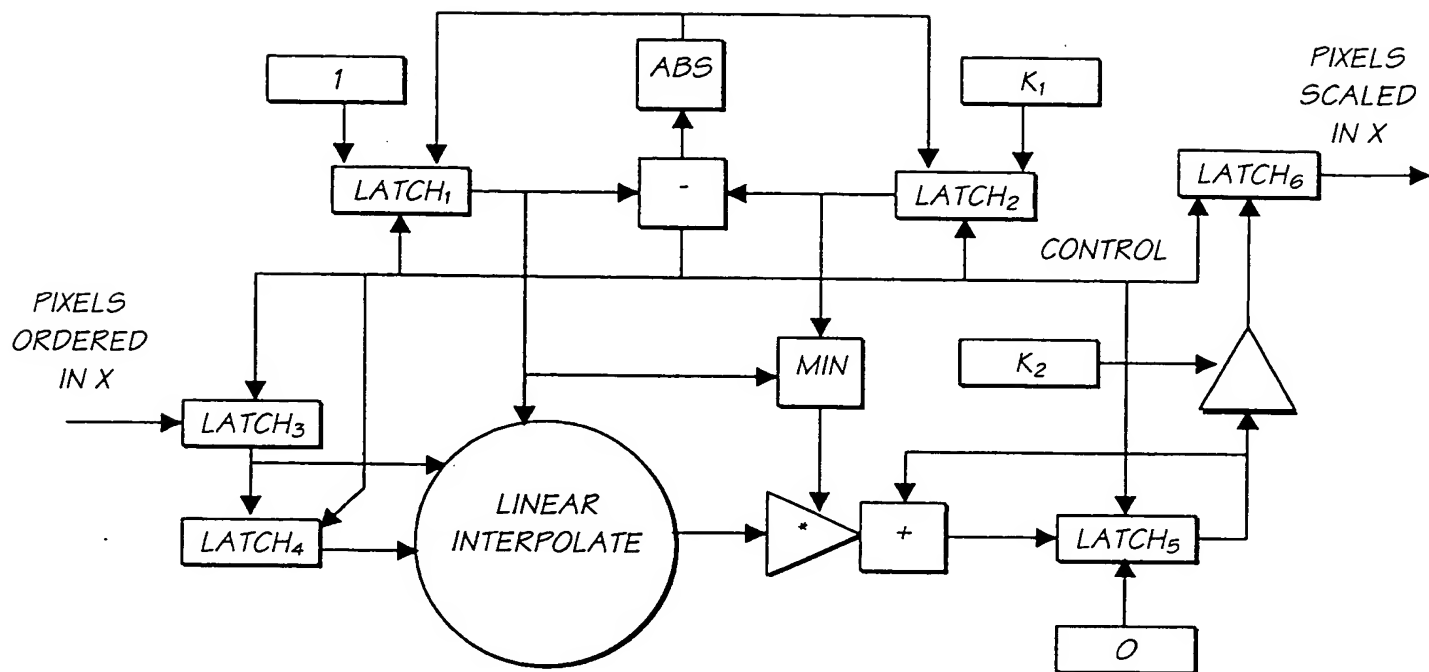


FIG. 99

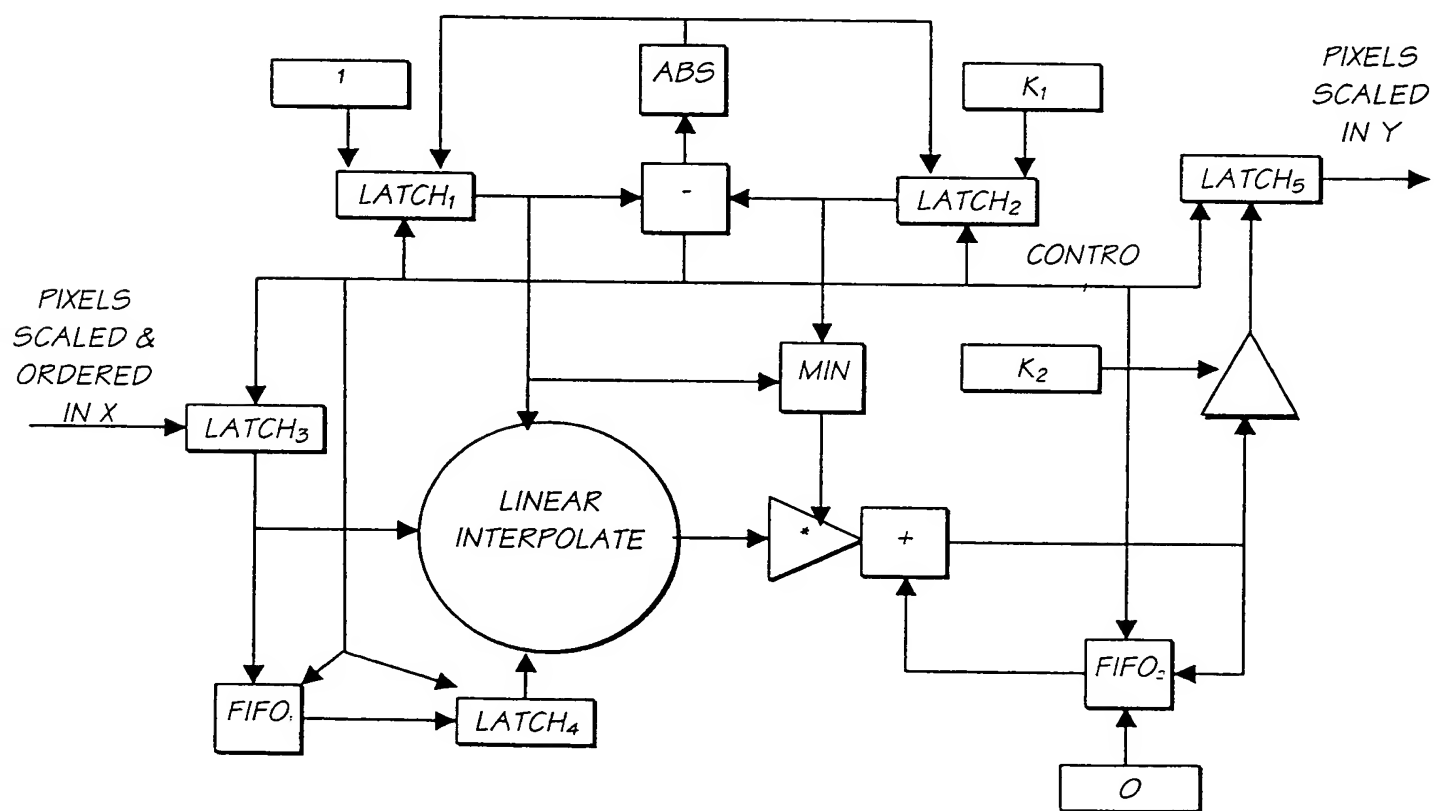


FIG. 100

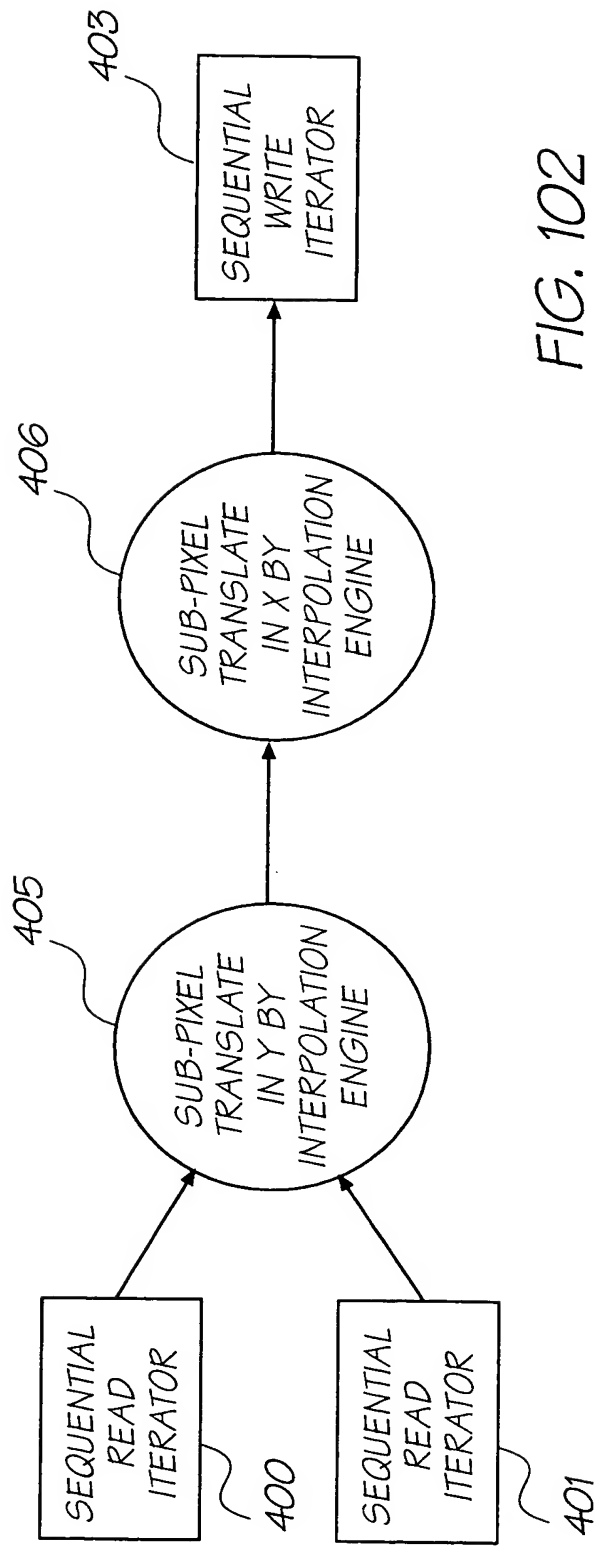


FIG. 102

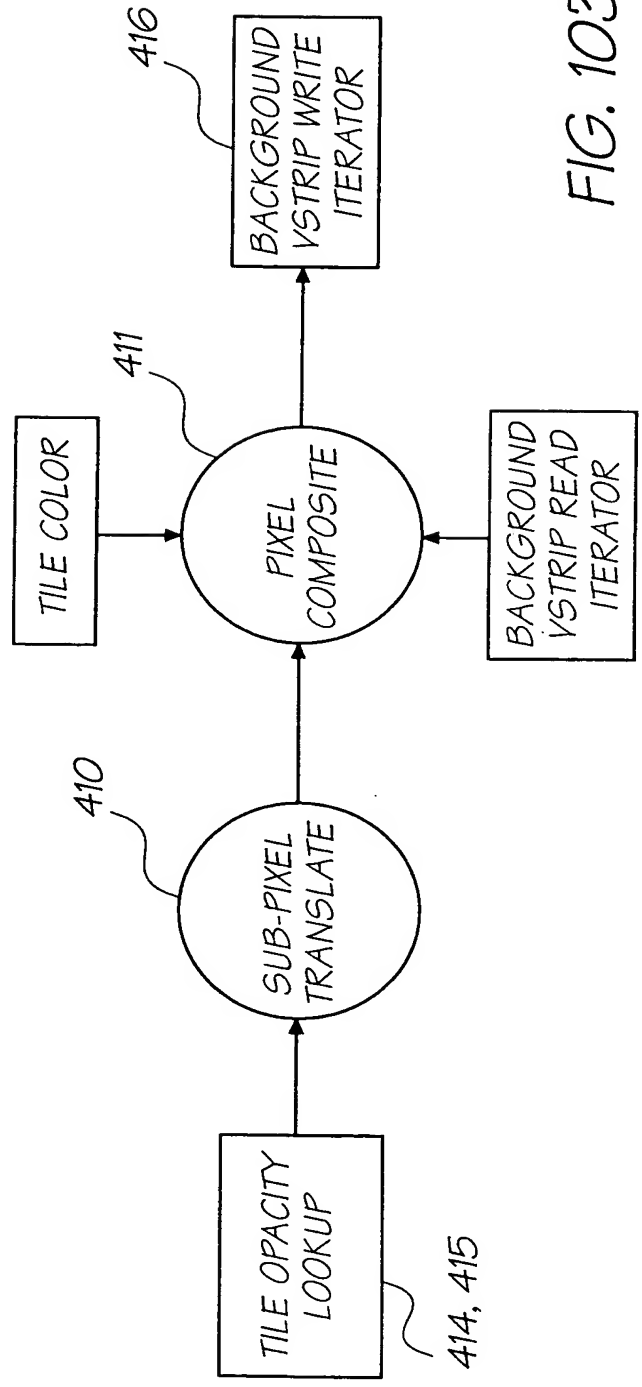


FIG. 103

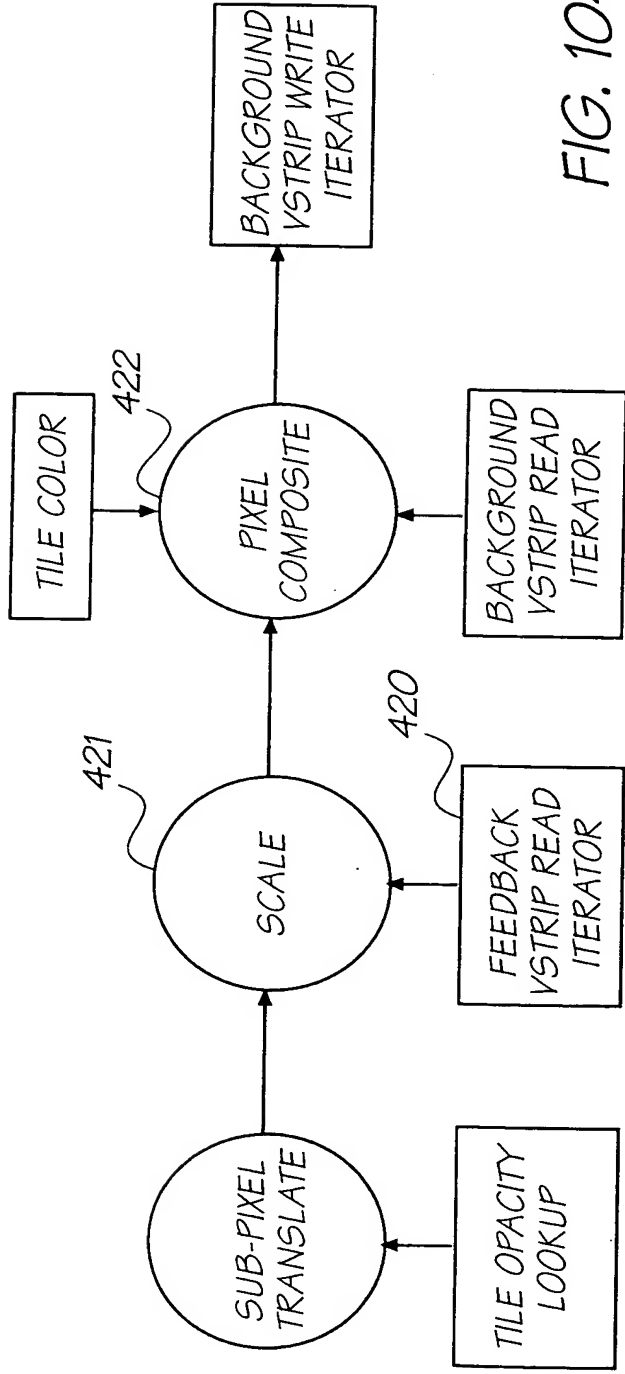


FIG. 104

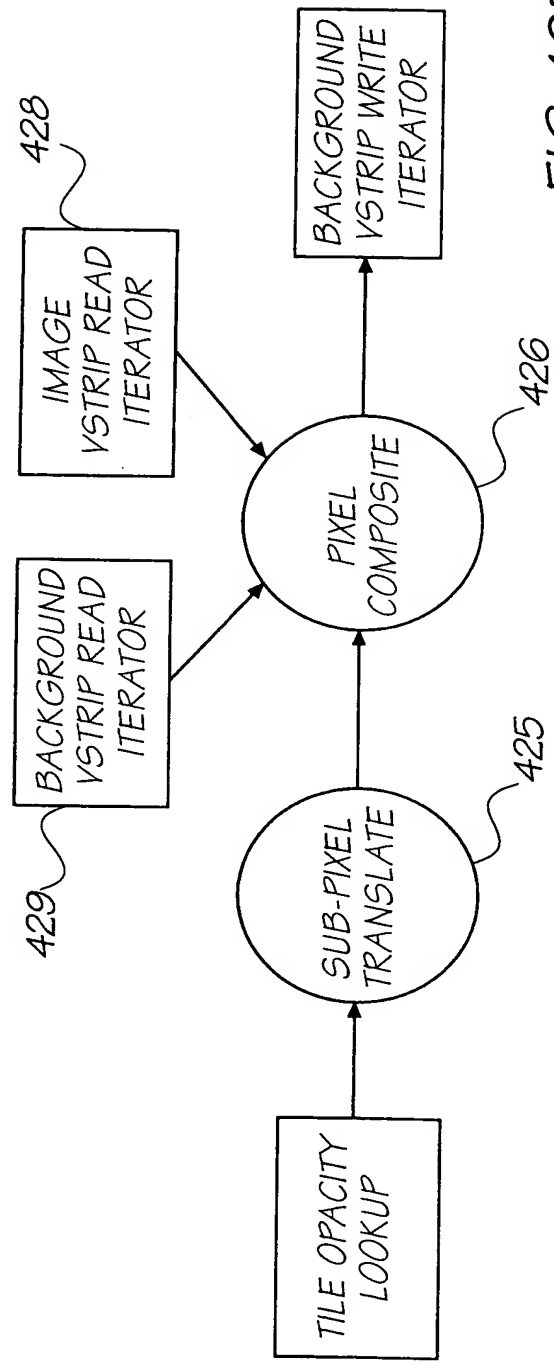


FIG. 105

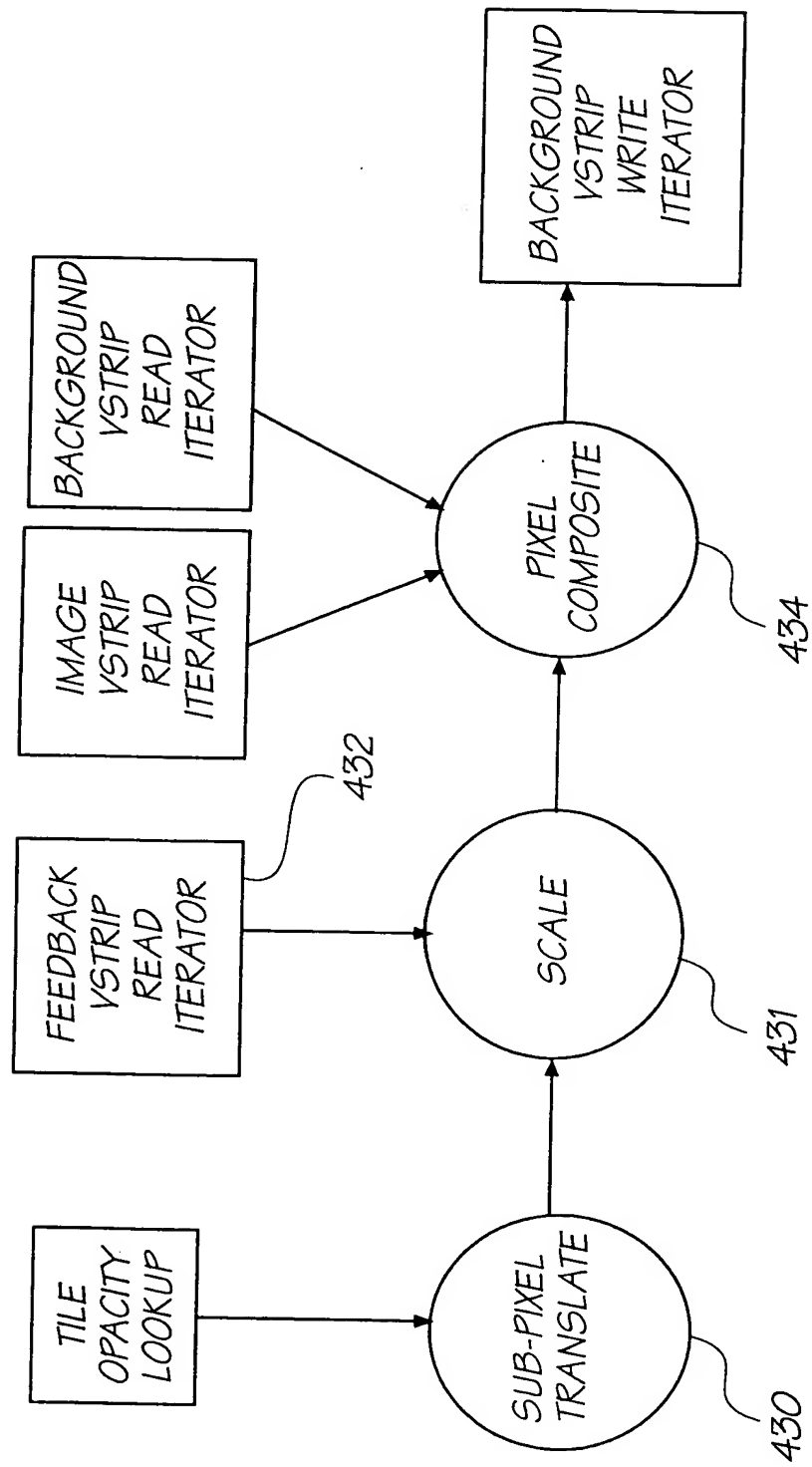


FIG. 106

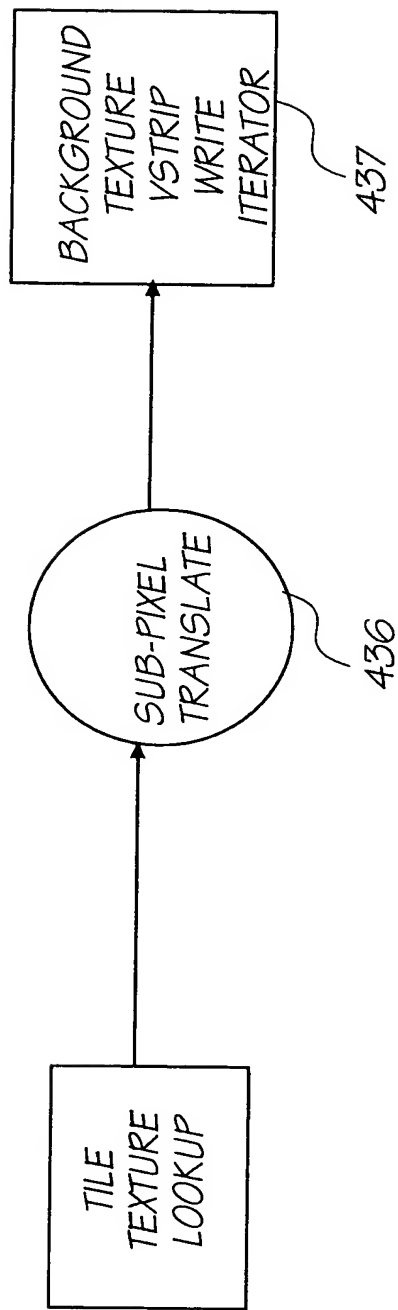


FIG. 107

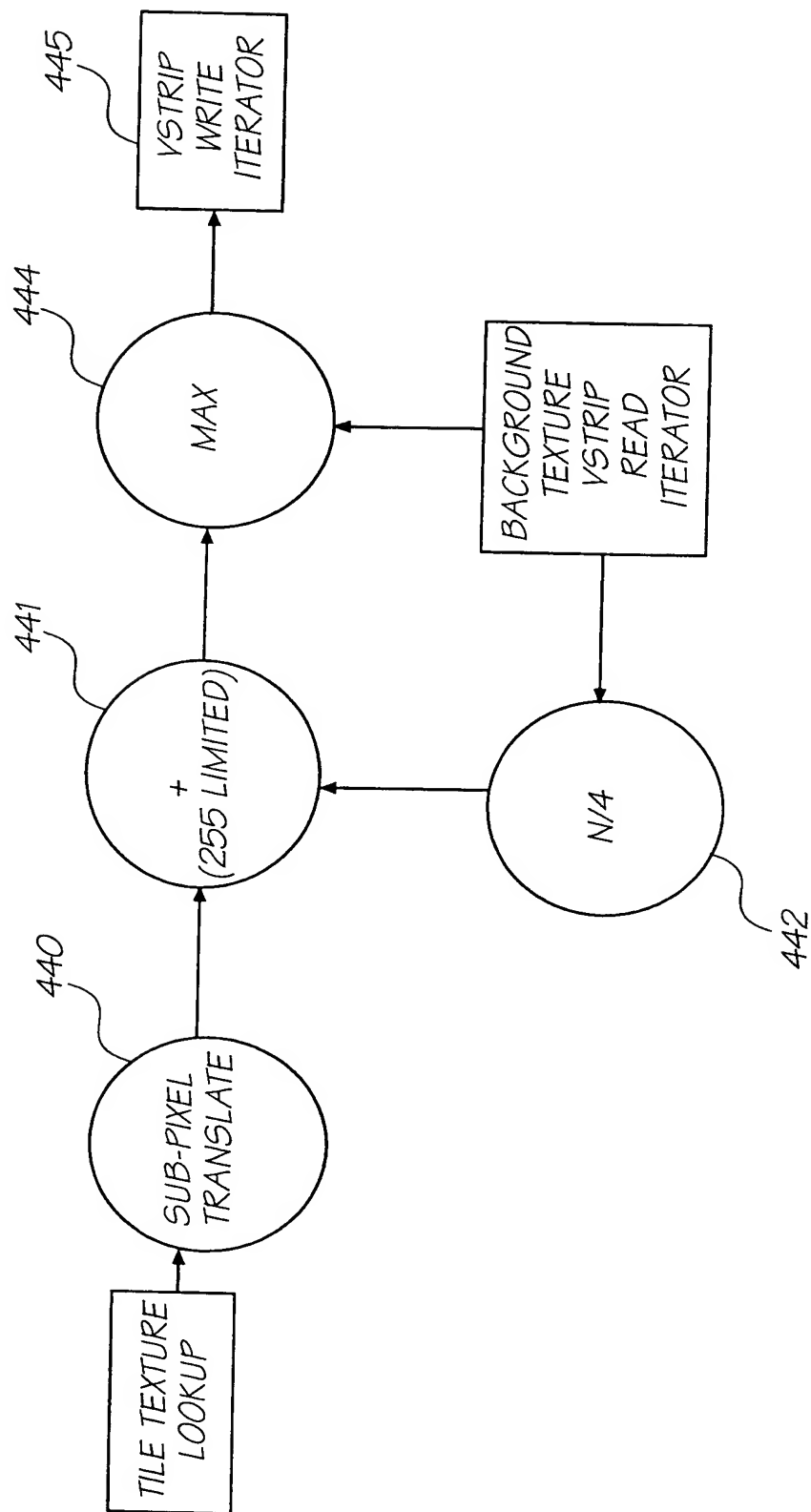


FIG. 108



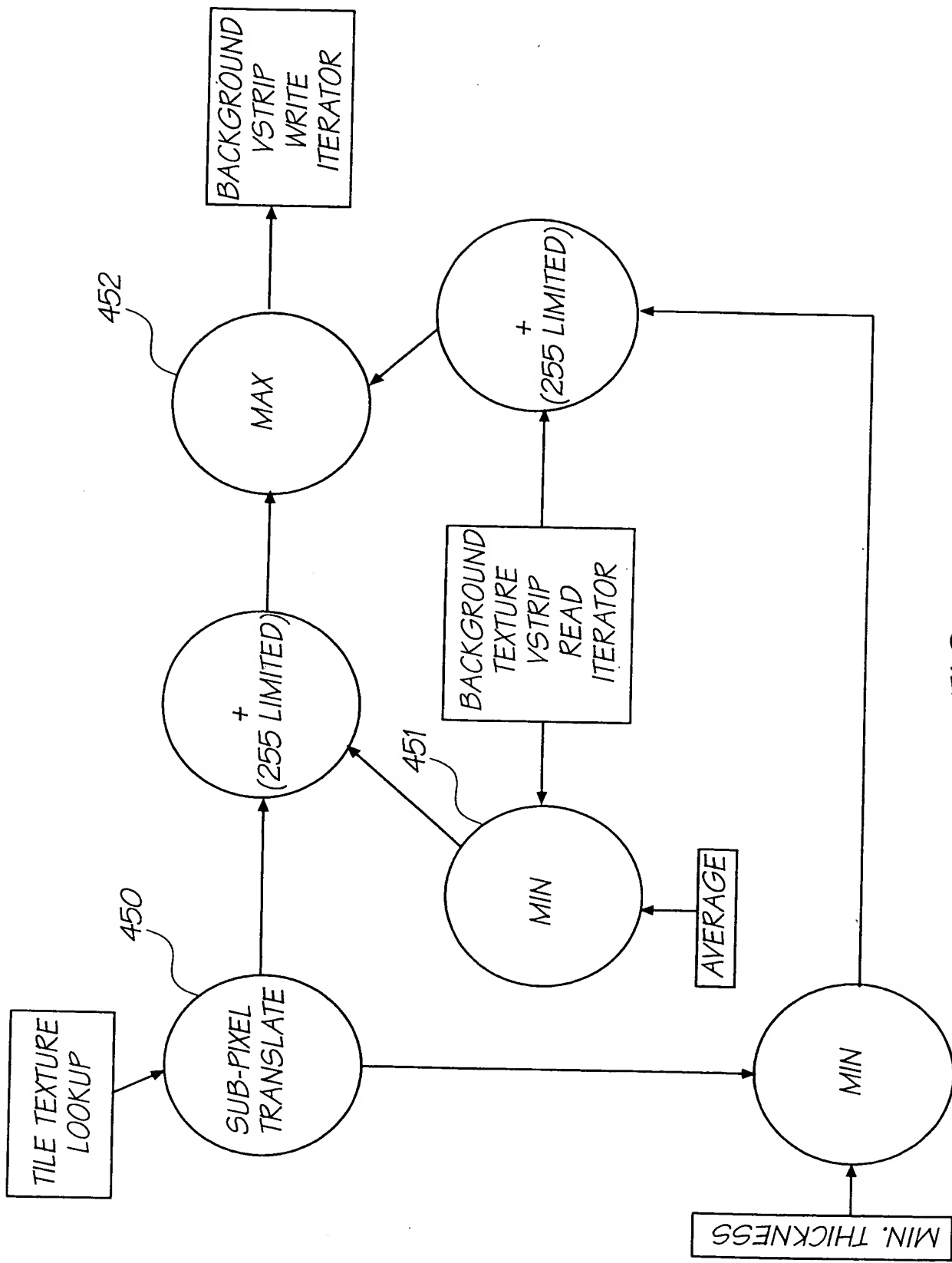


FIG. 109

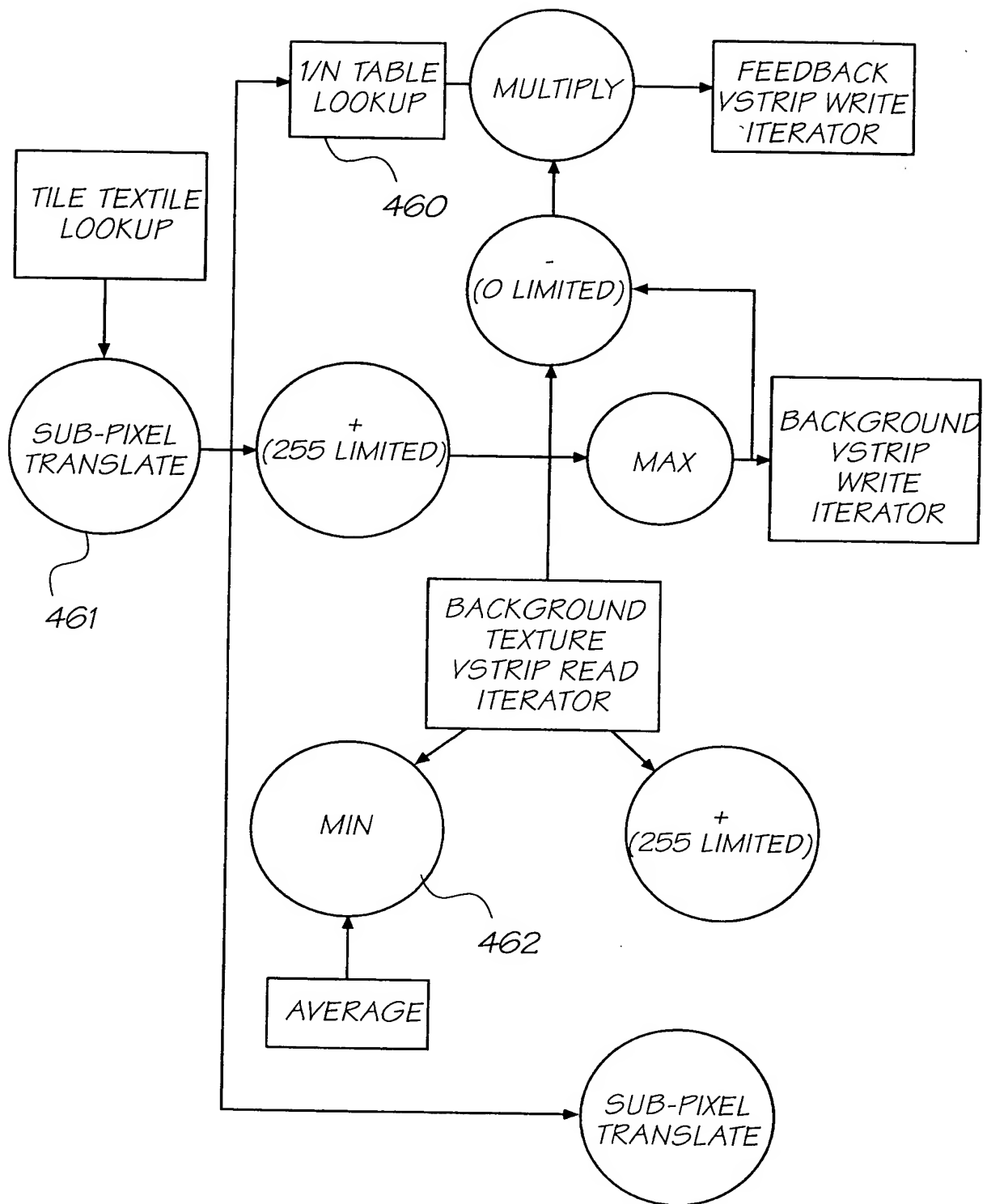


FIG. 110

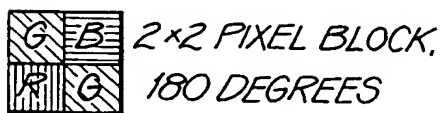
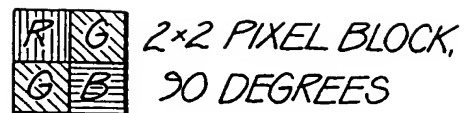


FIG. 111

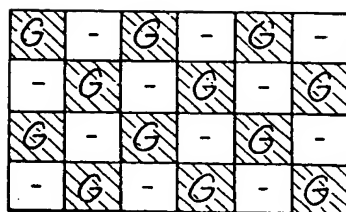
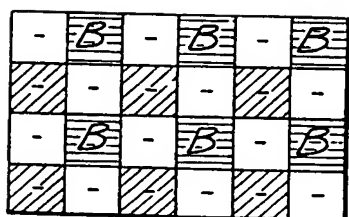


FIG. 112






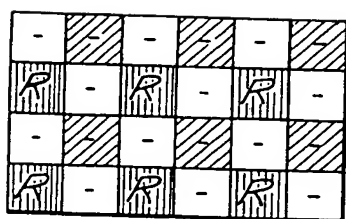
-  LINEAR INTERPOLATED PIXELS
-  BI-LINEAR INTERPOLATED PIXELS
-  ACTUAL PIXELS (NOT INTERPOLATED)

FIG. 113






-  LINEAR INTERPOLATED PIXELS
-  BI-LINEAR INTERPOLATED PIXELS
-  ACTUAL PIXELS (NOT INTERPOLATED)

FIG. 114

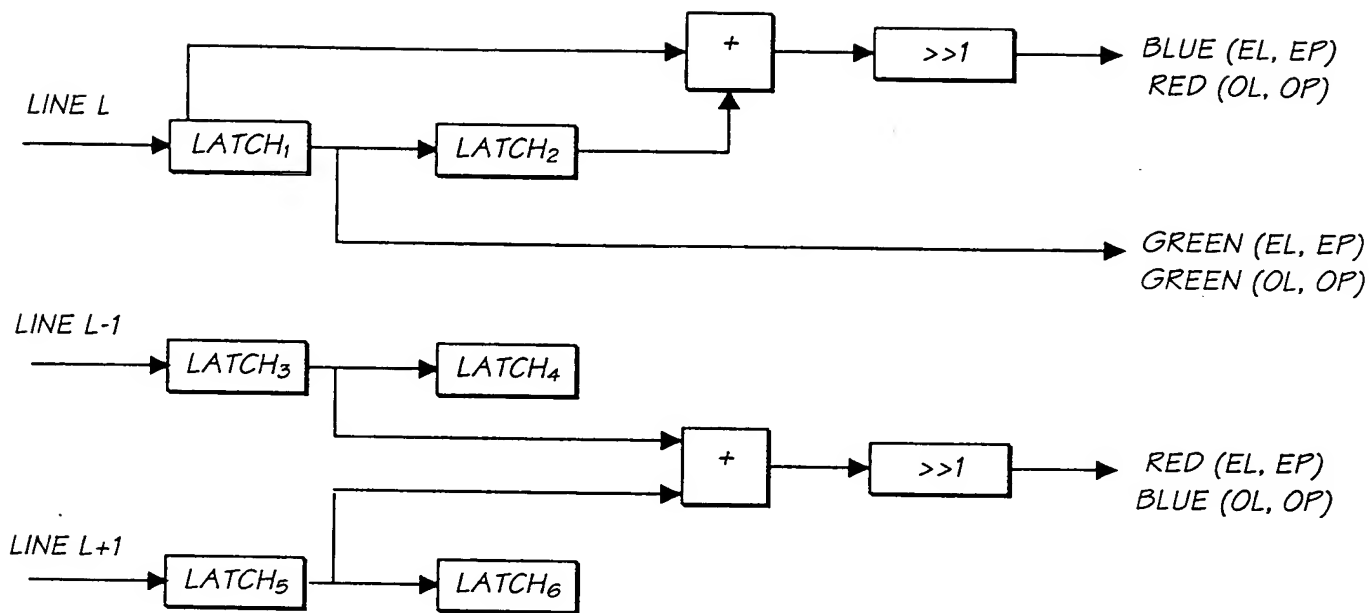


FIG. 115

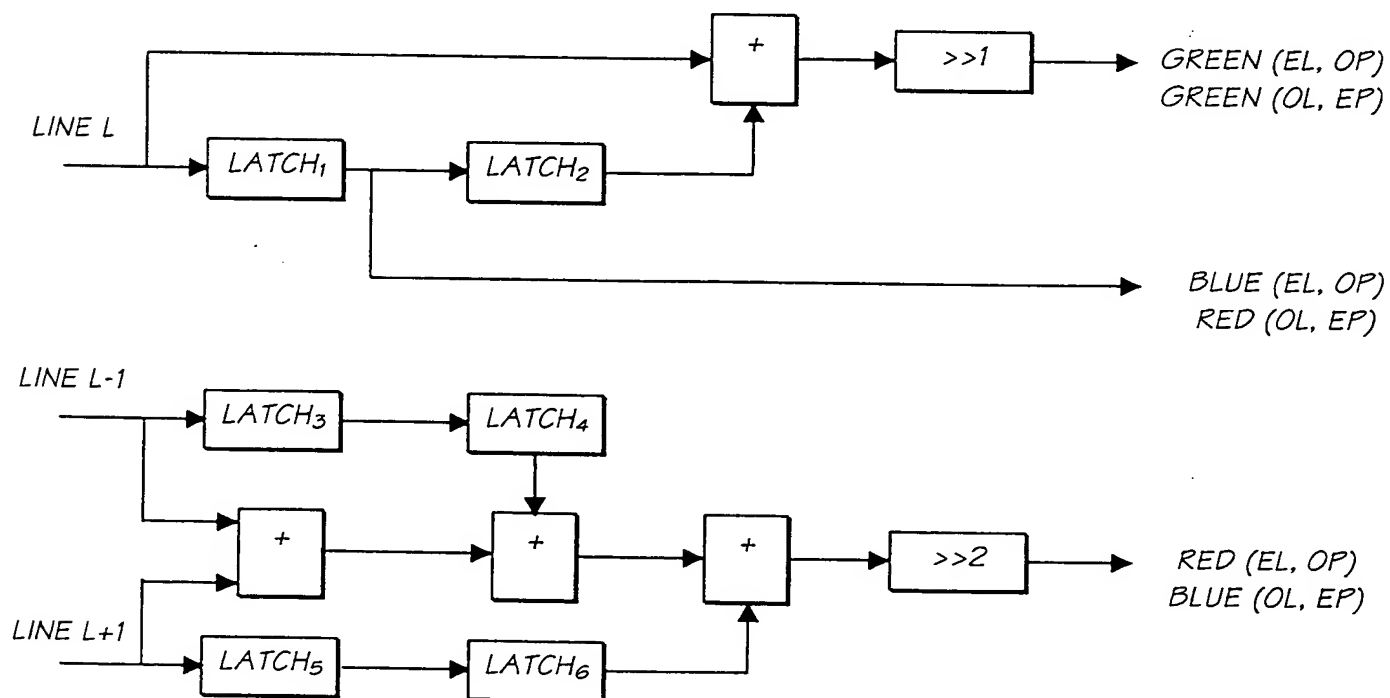


FIG. 116

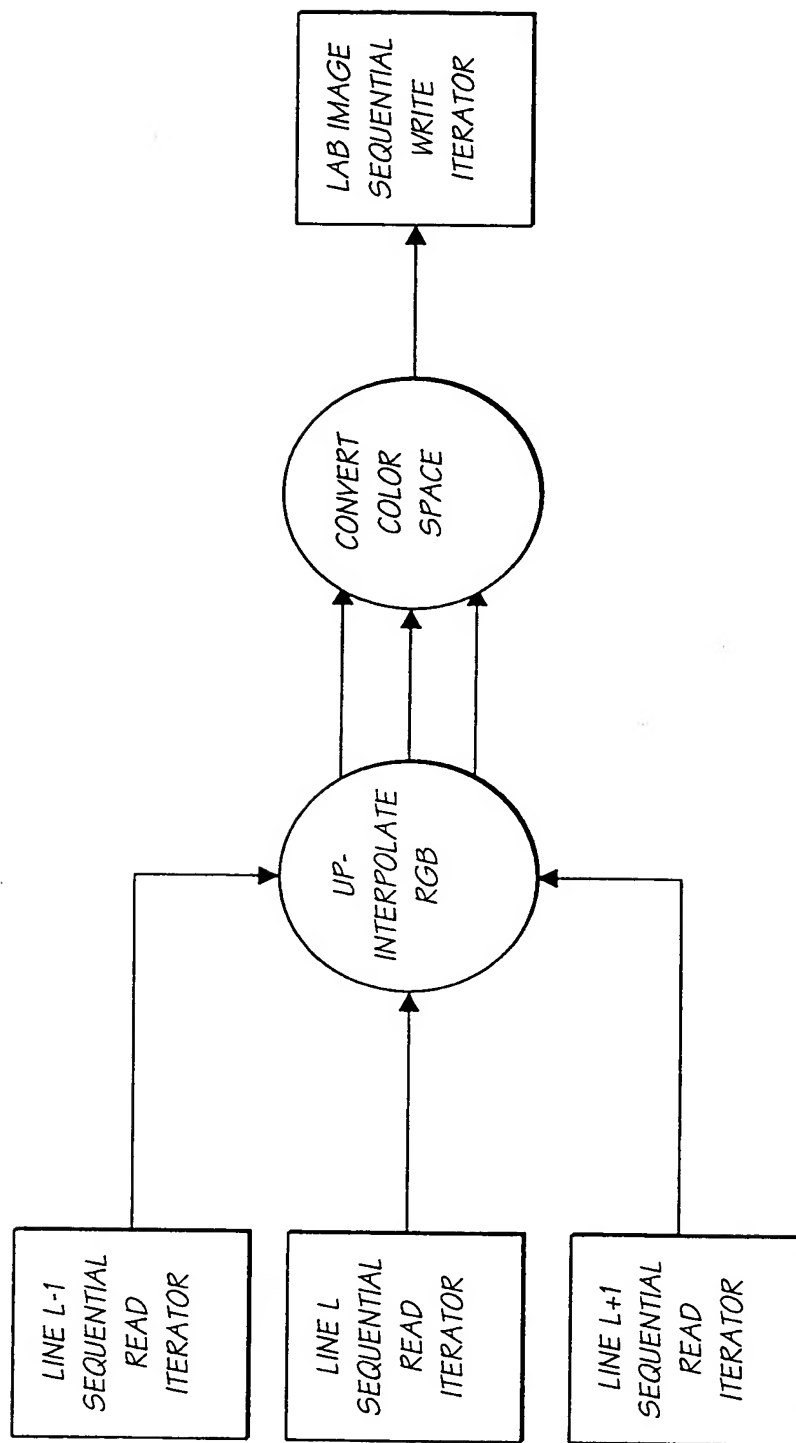


FIG. 117

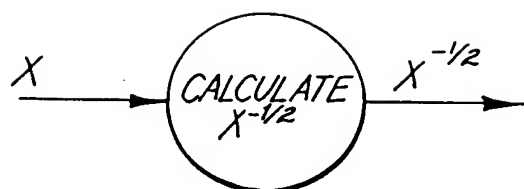


FIG. 118

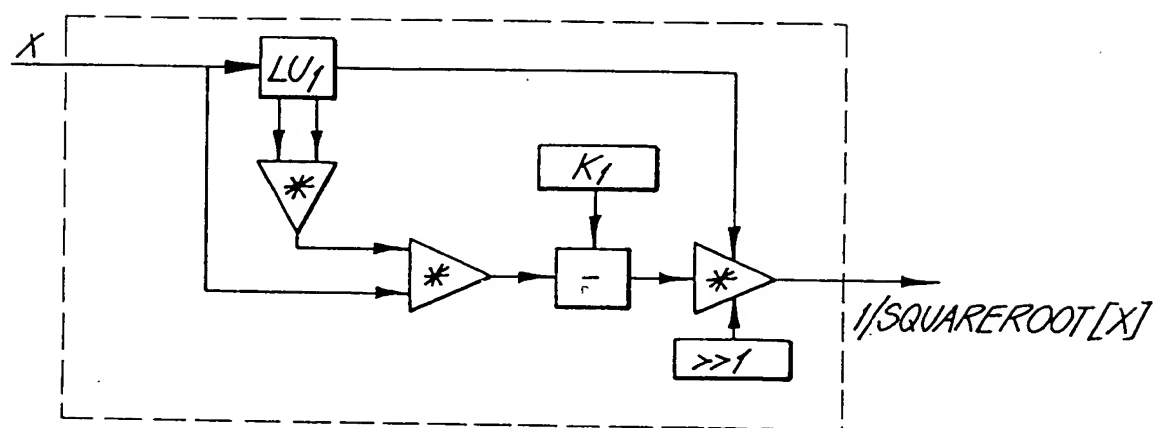


FIG. 119

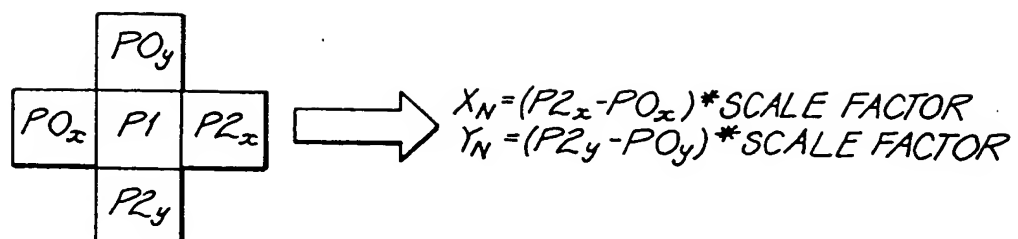


FIG. 120

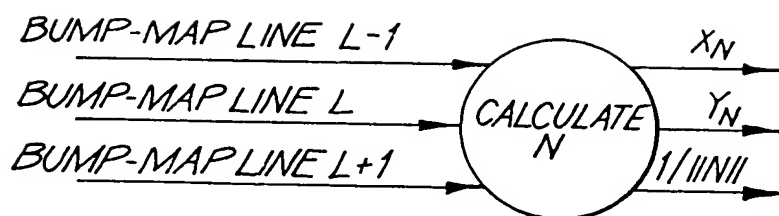


FIG. 121



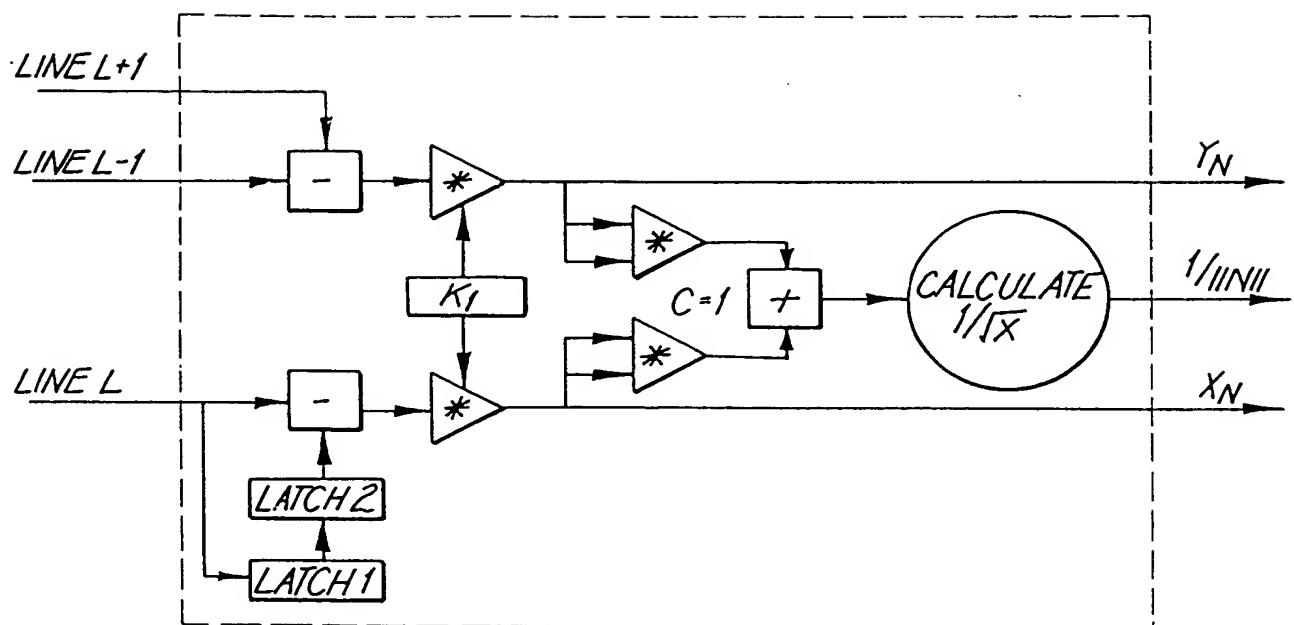


FIG. 122

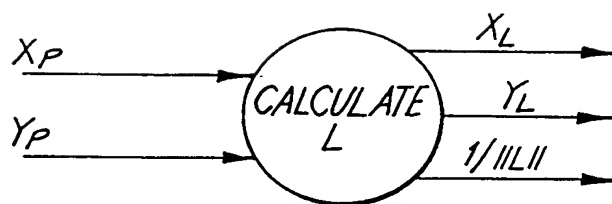


FIG. 123

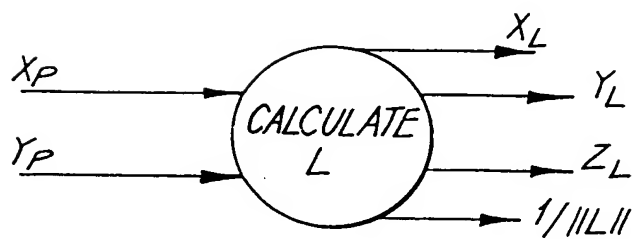


FIG. 124

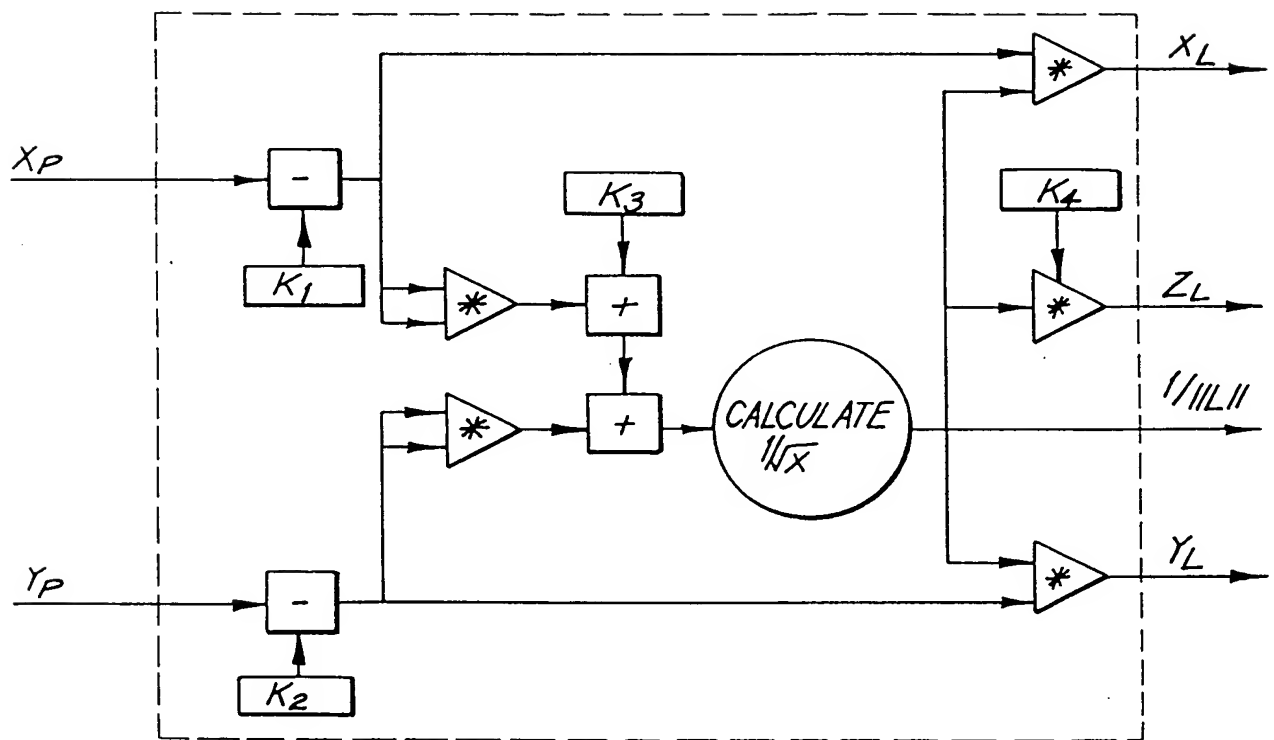


FIG. 125

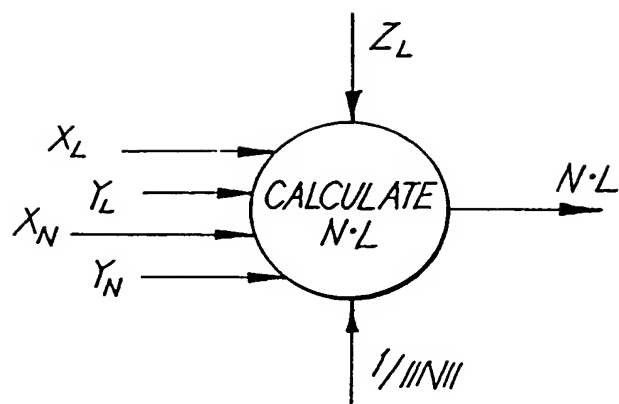


FIG. 126

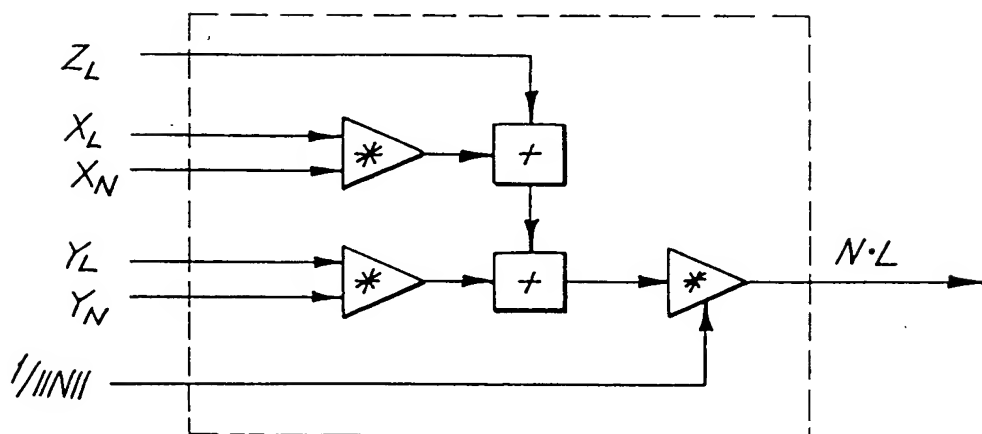


FIG. 127

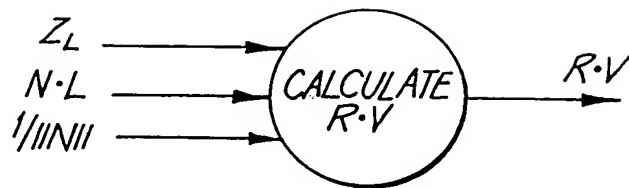


FIG. 128

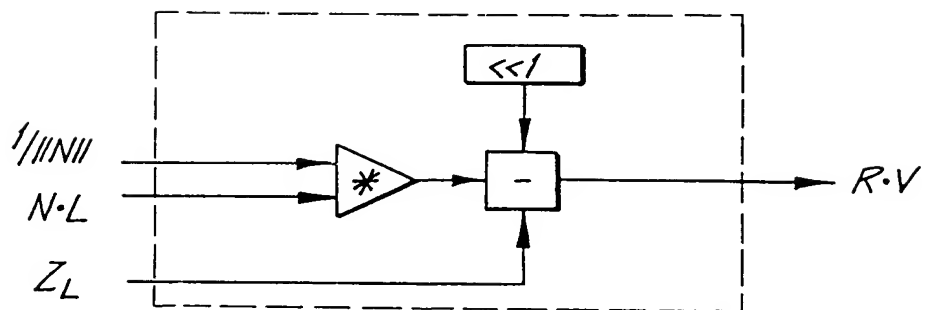


FIG. 129

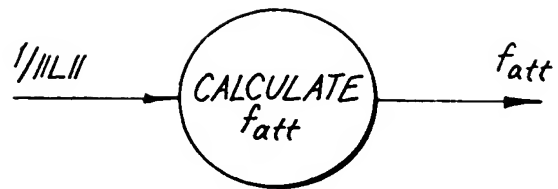


FIG. 130

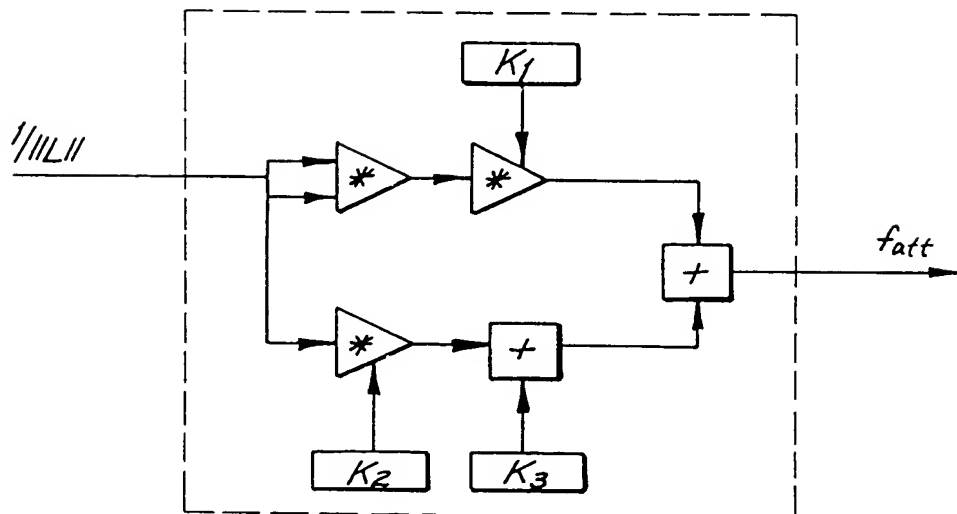


FIG. 131

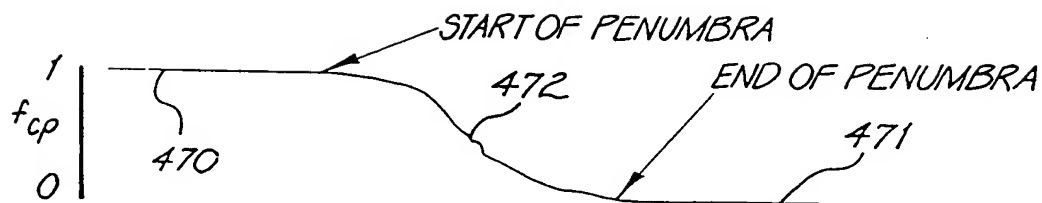


FIG. 132

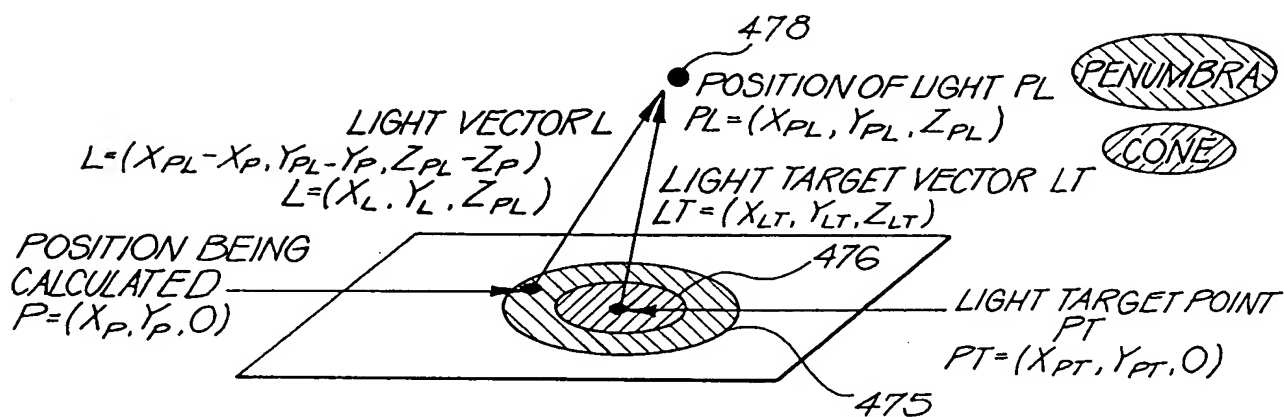


FIG. 133

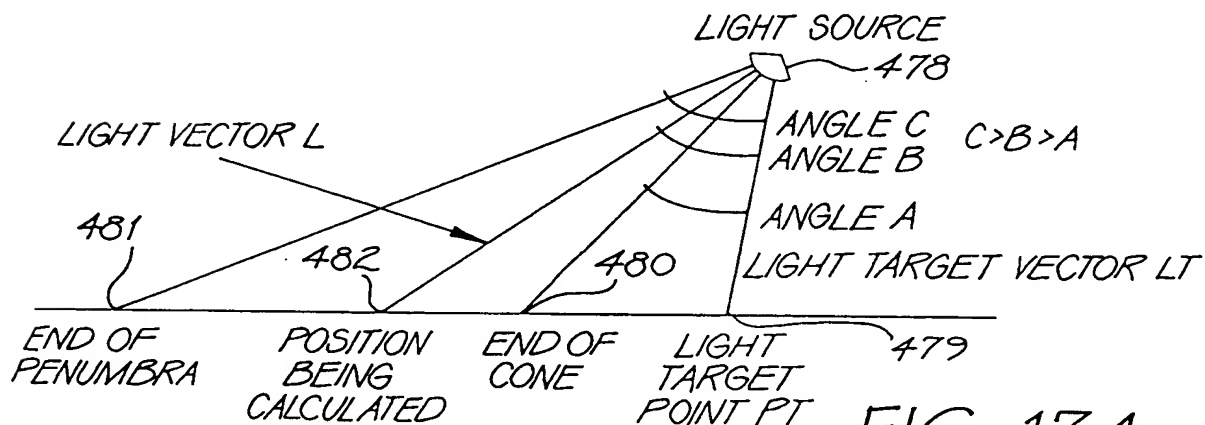


FIG. 134

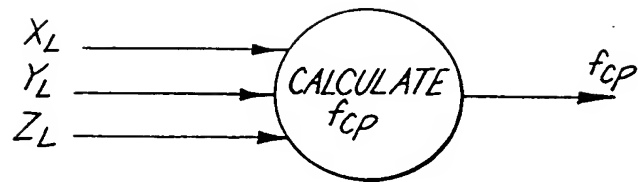


FIG. 135

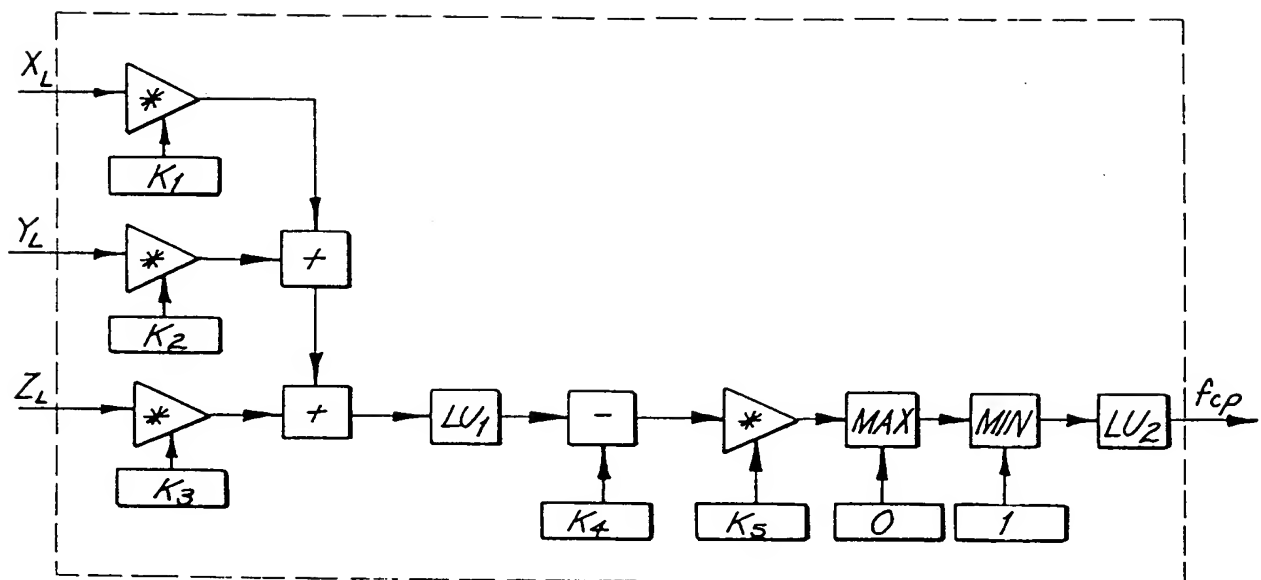


FIG. 136



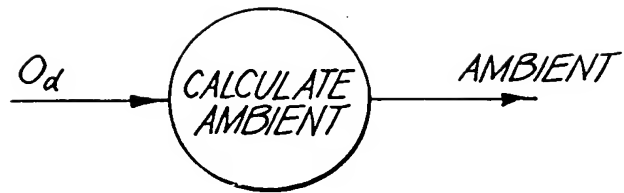


FIG. 137

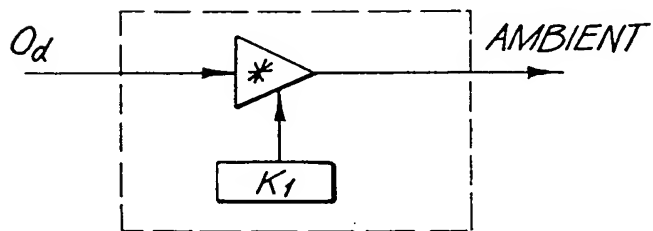


FIG. 138

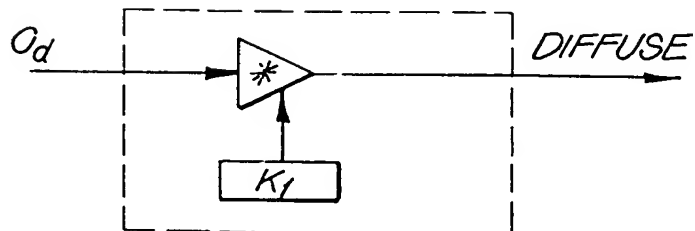


FIG. 139

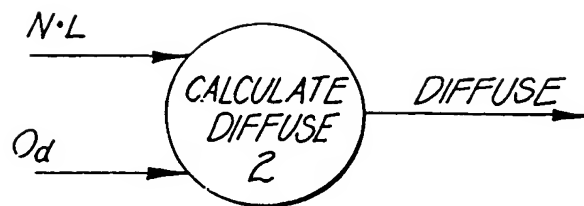


FIG. 140

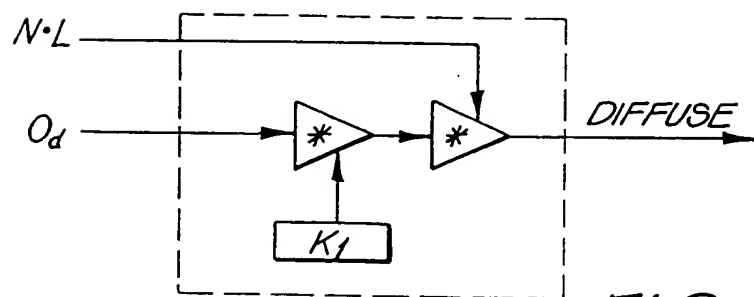


FIG. 141

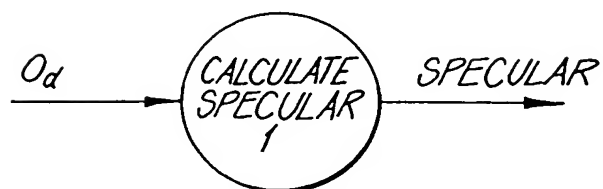


FIG. 142

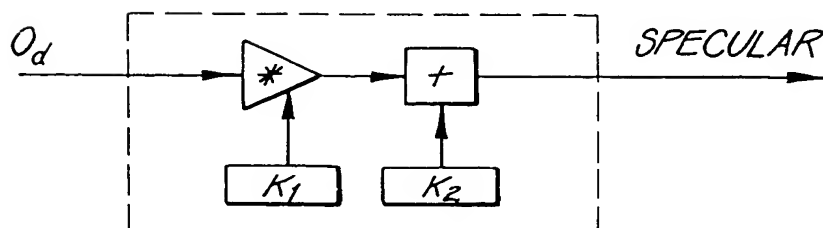


FIG. 143

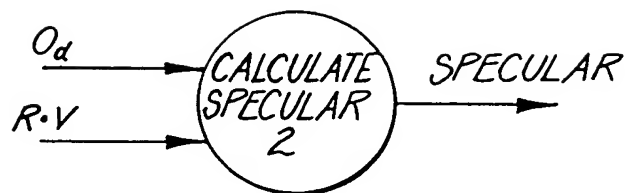


FIG. 144

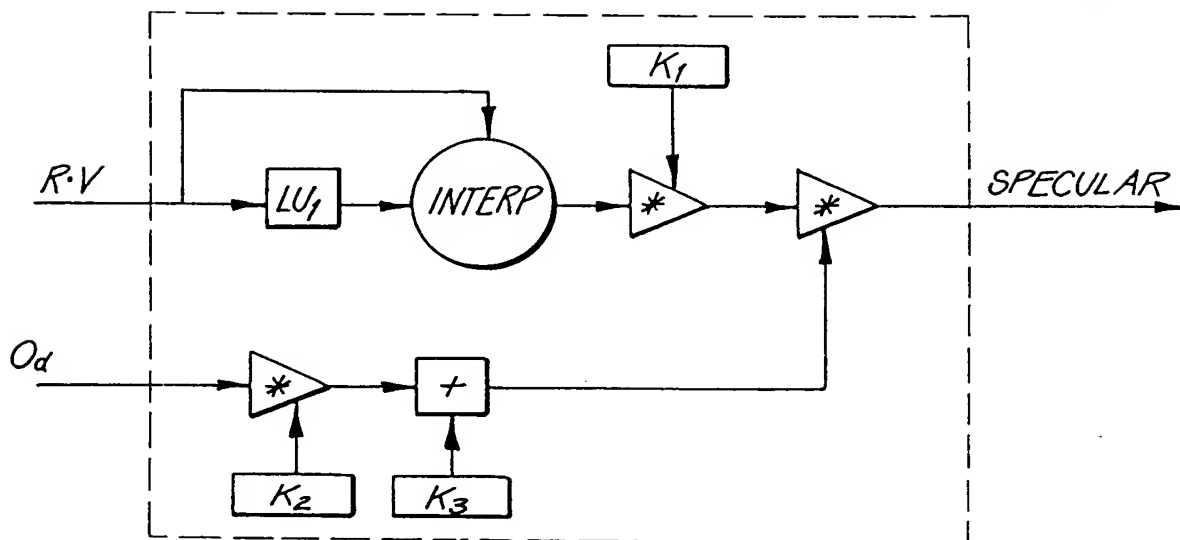


FIG. 145

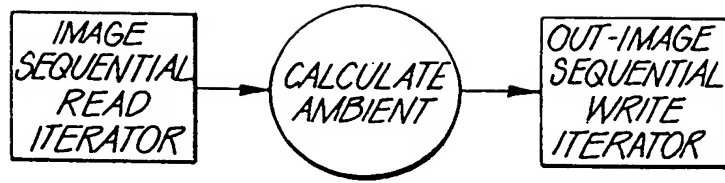


FIG. 146

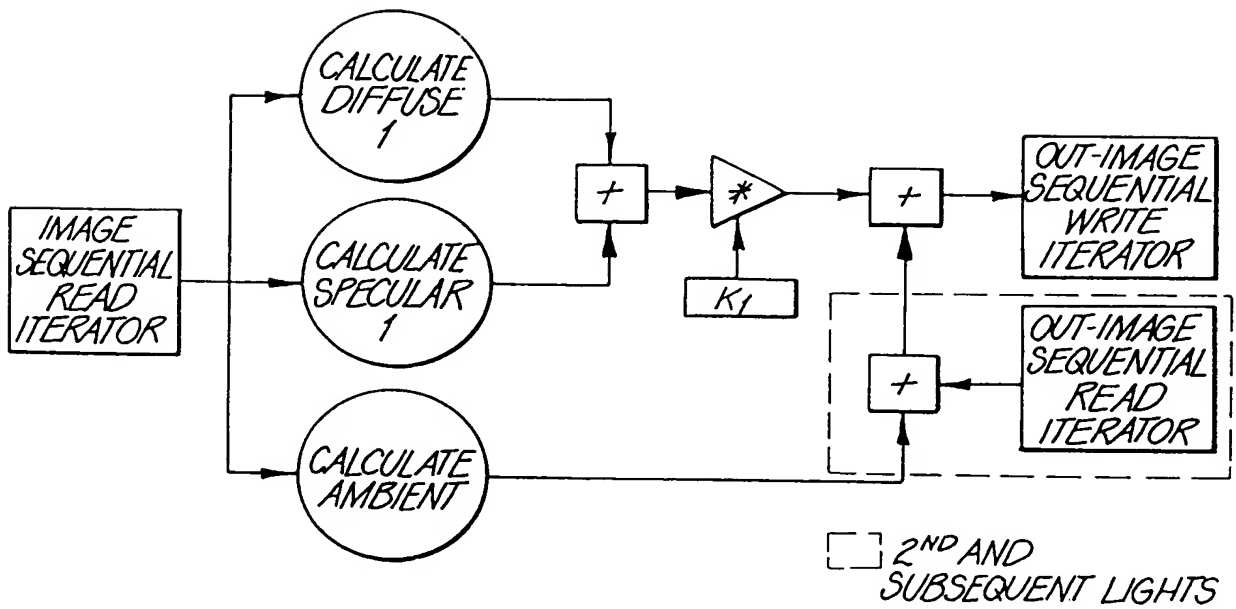


FIG. 147

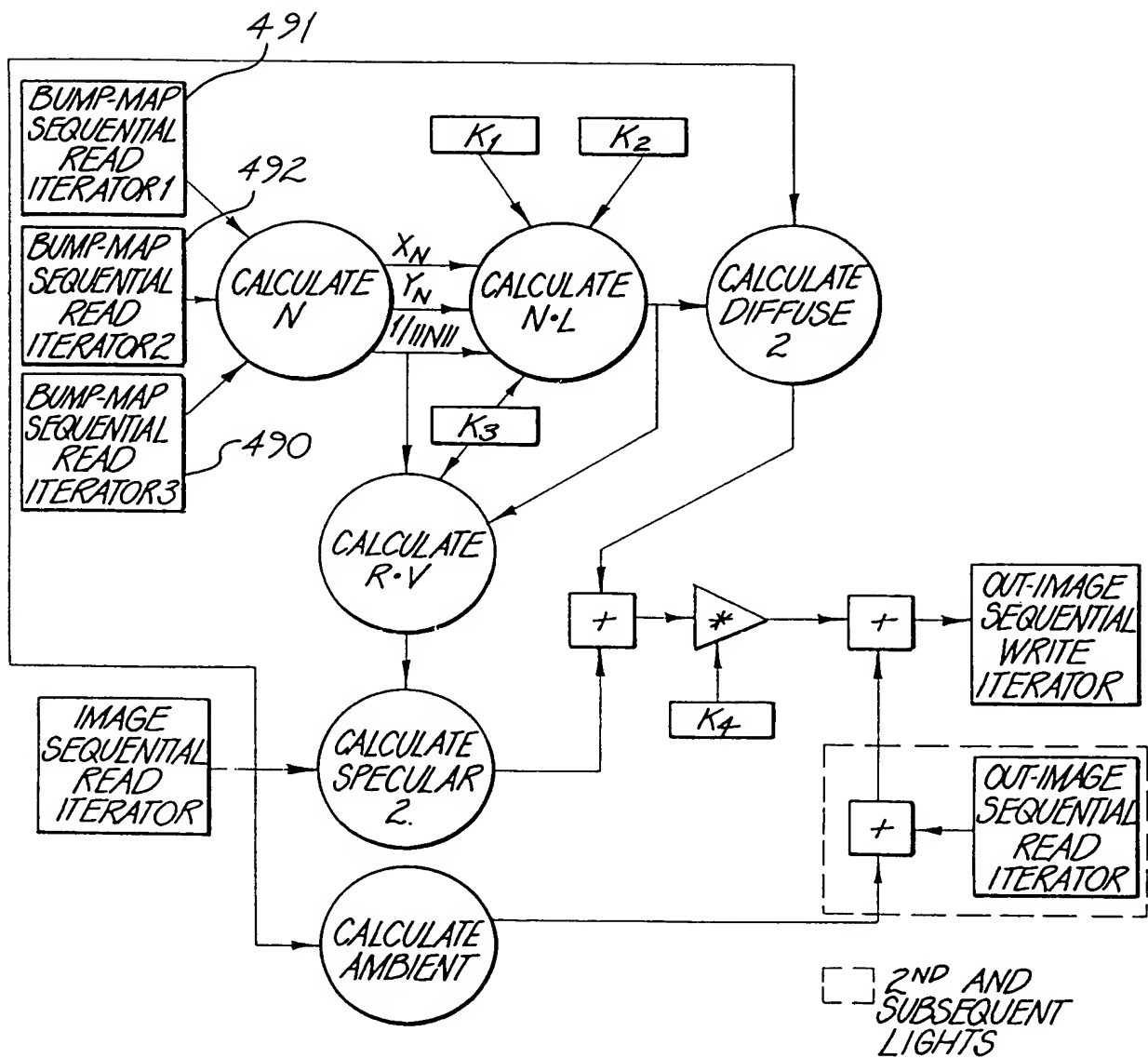


FIG. 148

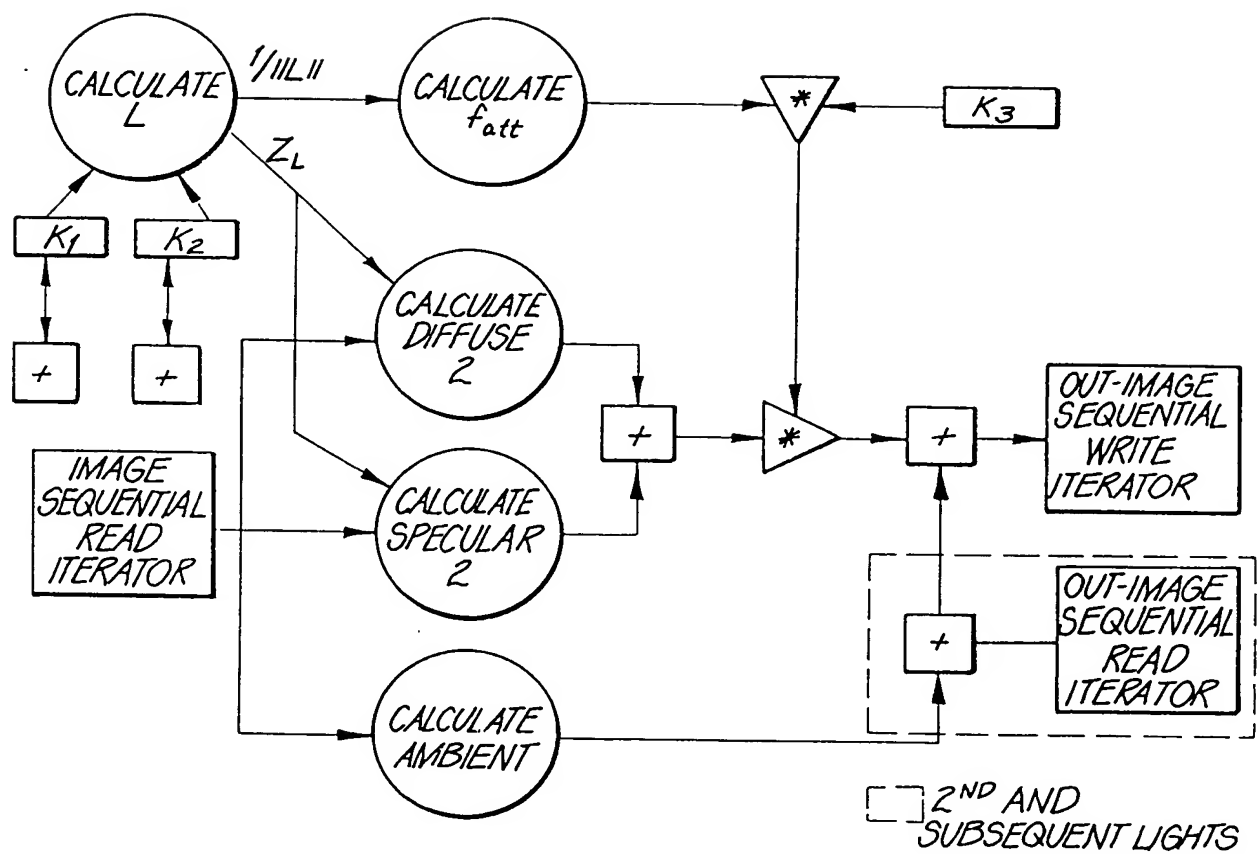


FIG. 149

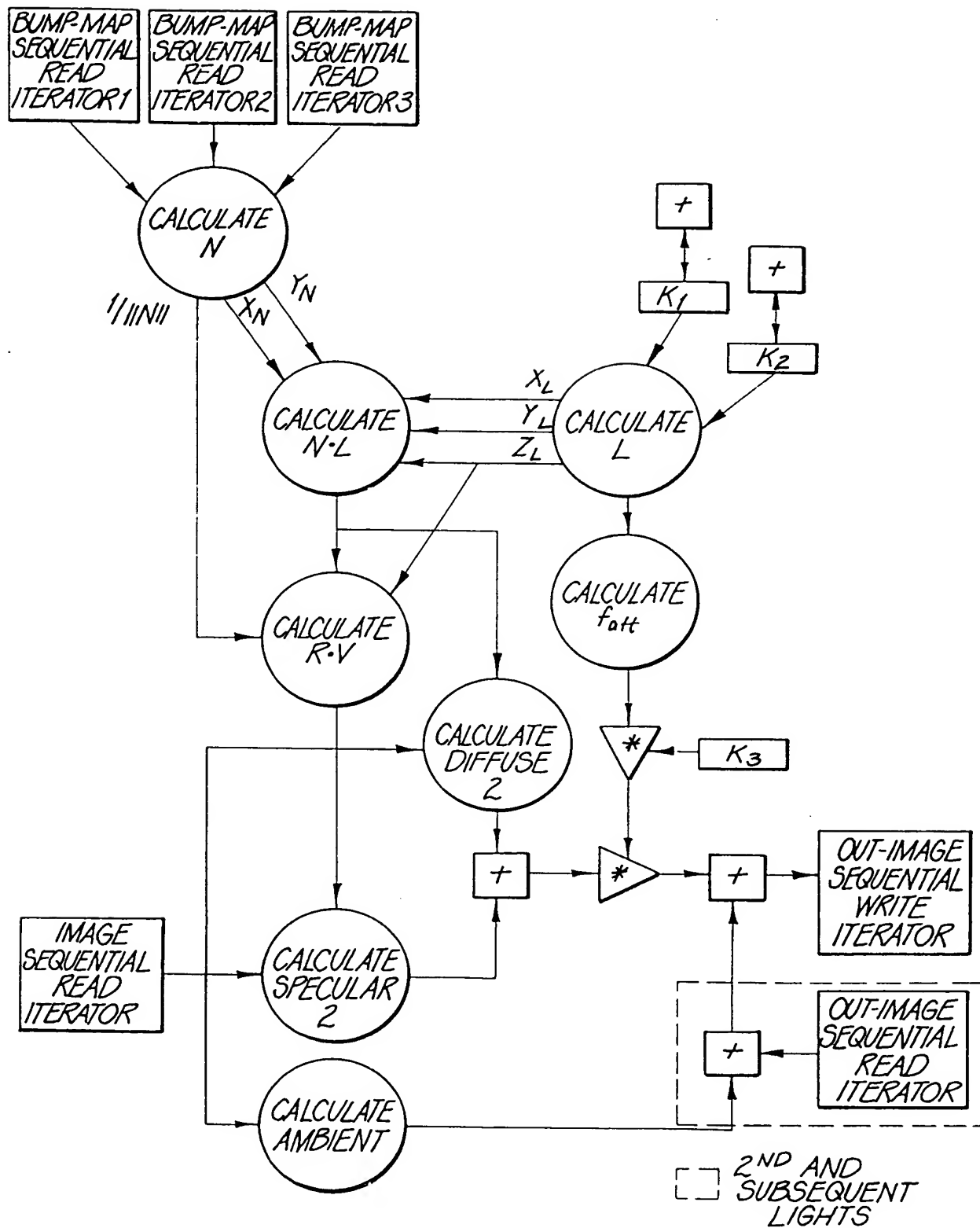


FIG. 150

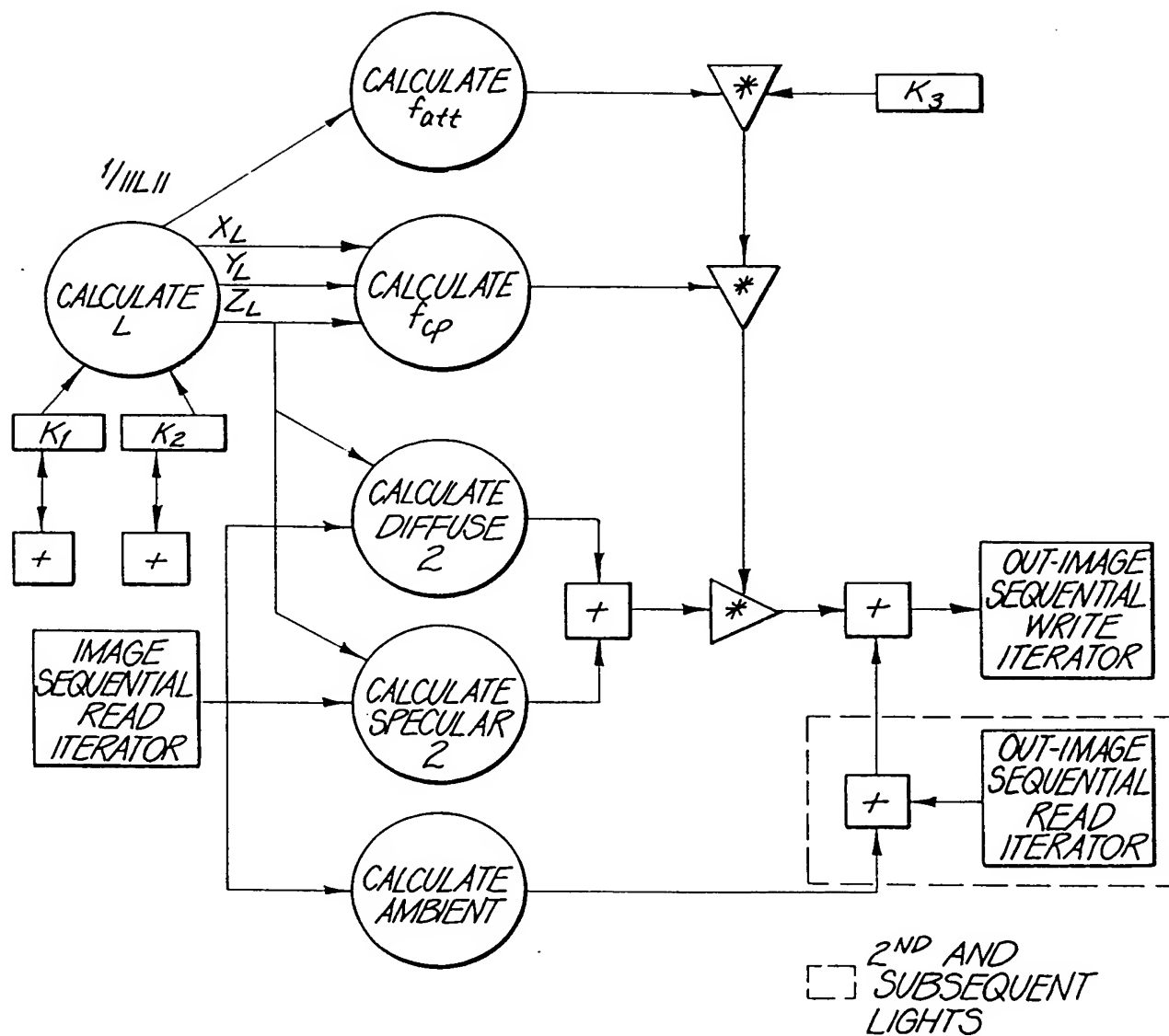


FIG. 151



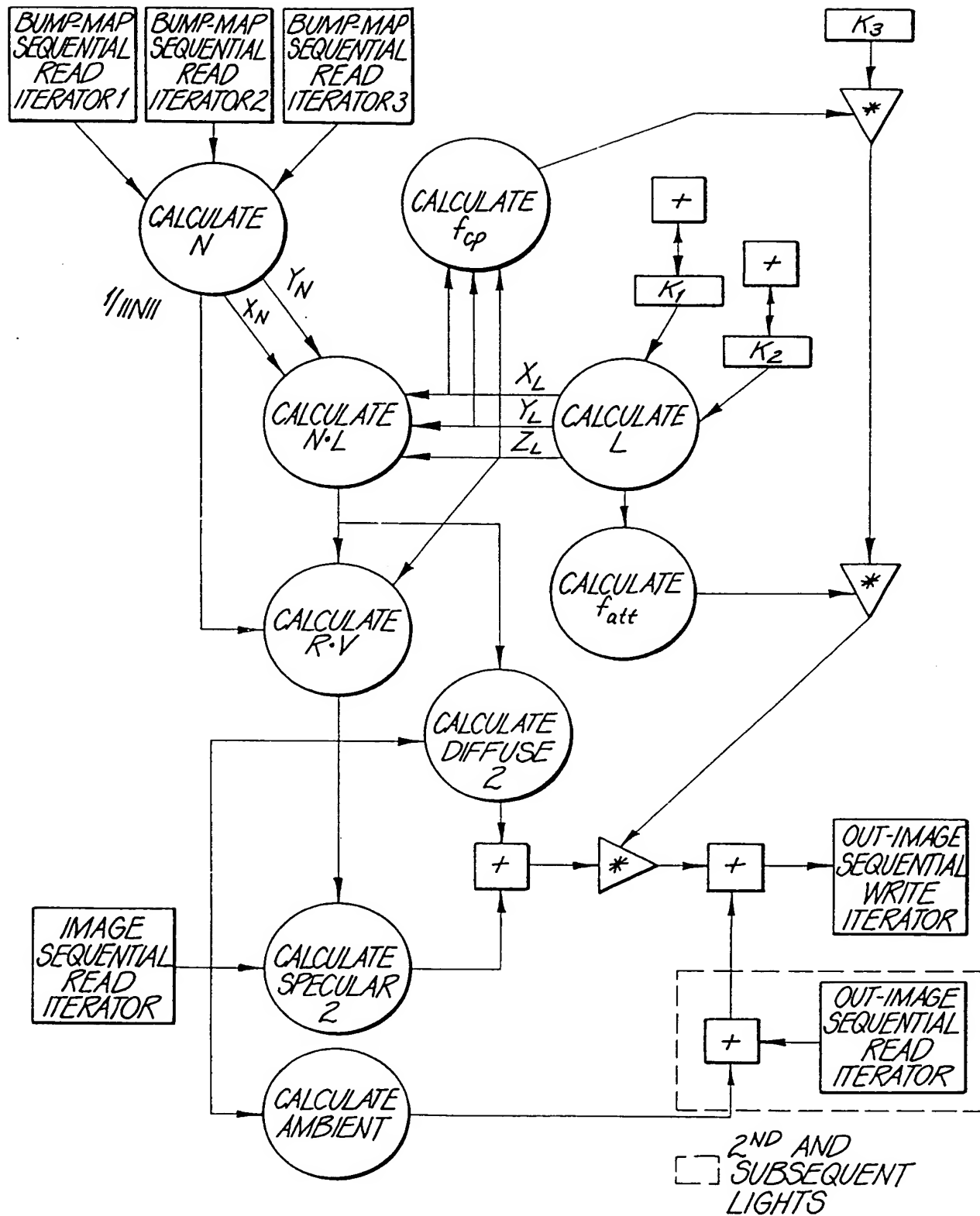
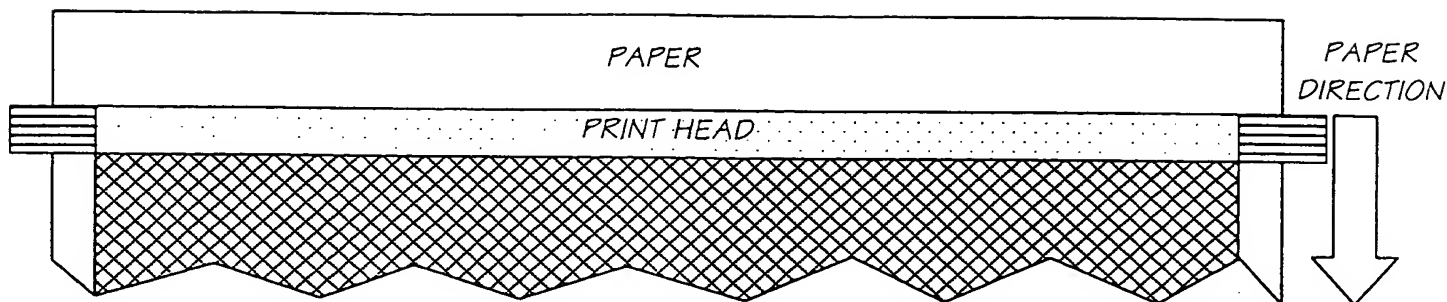


FIG. 152

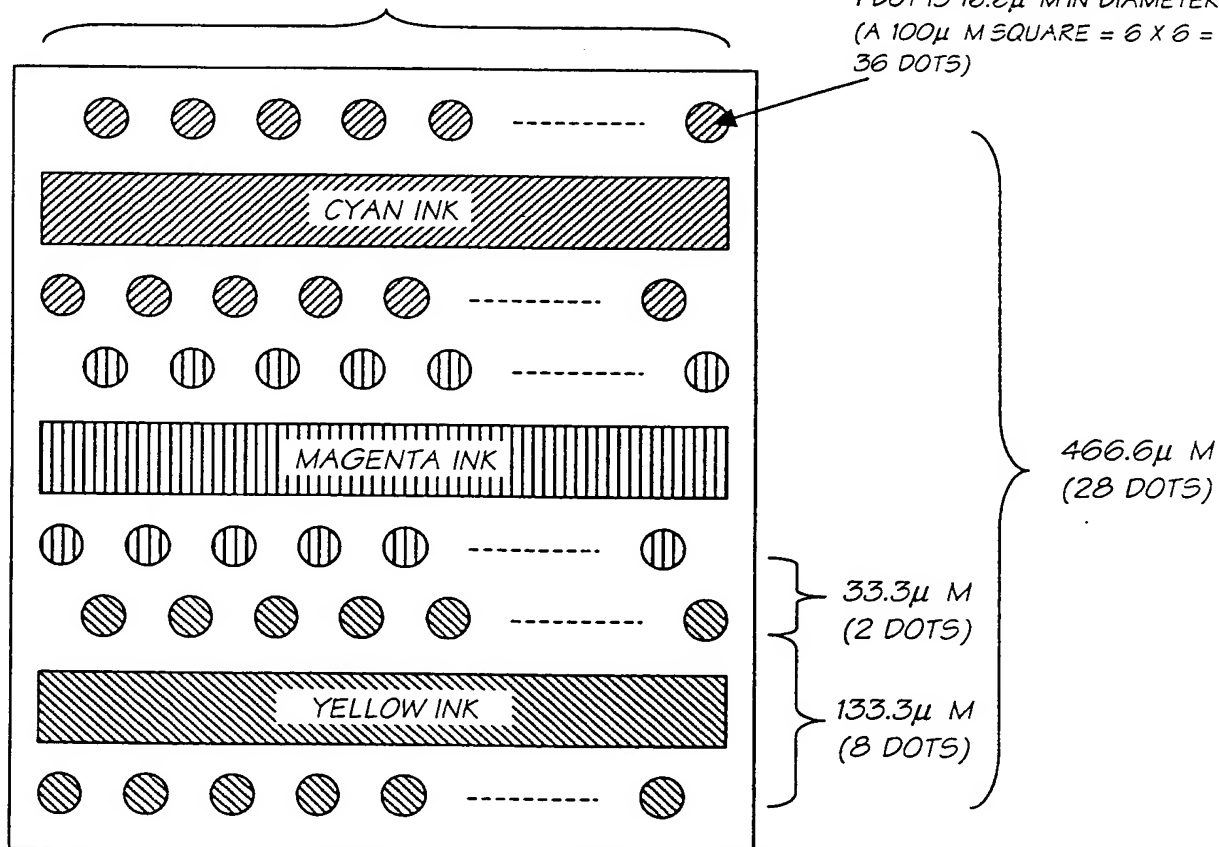


8 PRINT HEAD SEGMENTS IN PRINT HEAD

SEGMENT 0	SEGMENT 1	SEGMENT 2	SEGMENT 3	SEGMENT 4	SEGMENT 5	SEGMENT 6	SEGMENT 7
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

1250  $\mu$  M  
(375 DOTS PER SEGMENT ROW, OR 750 DOTS PER SEGMENT)

1 DOT IS 16.6  $\mu$  M IN DIAMETER  
(A 100  $\mu$  M SQUARE = 6 X 6 = 36 DOTS)



EACH SEGMENT CONTAINS 6 ROWS OF DOTS: ODD AND EVEN CYAN, MAGENTA, AND YELLOW.

FIG. 153

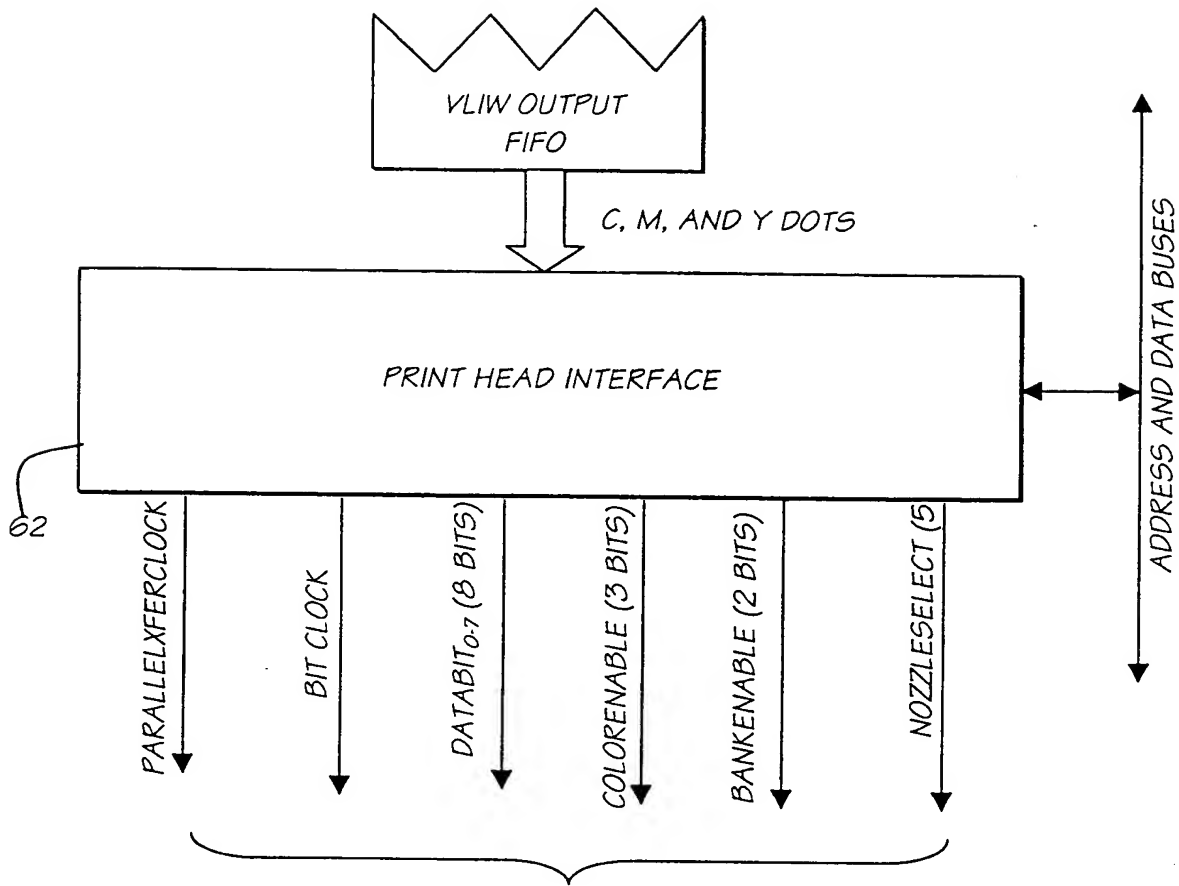


FIG. 154

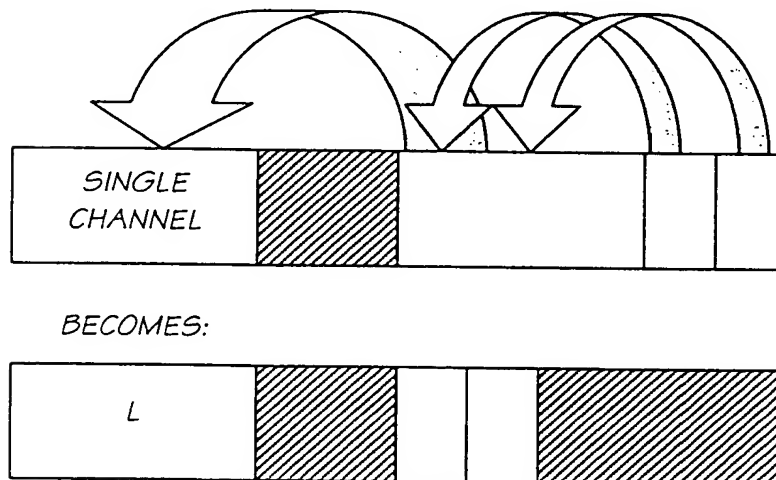
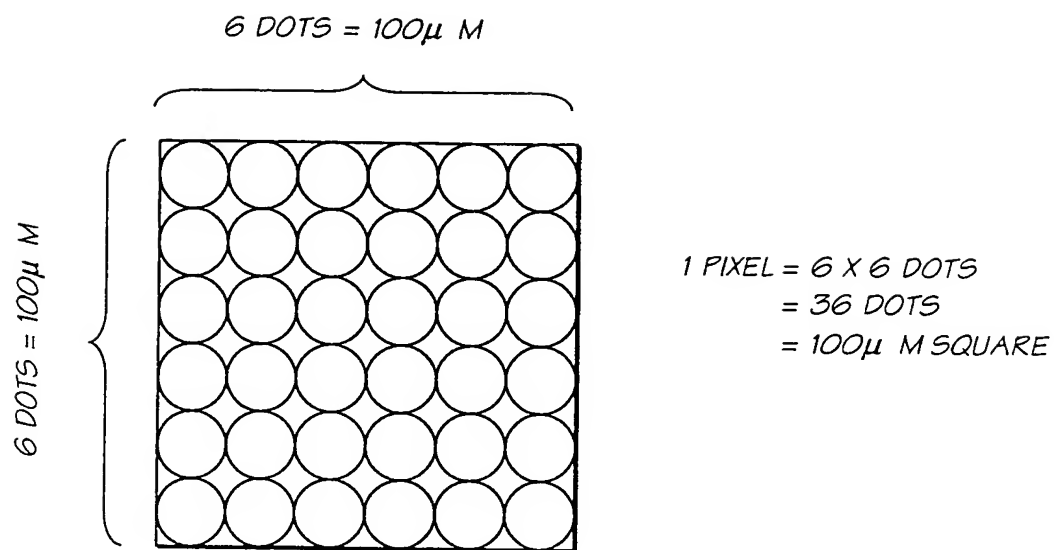


FIG. 155



*FIG. 156*

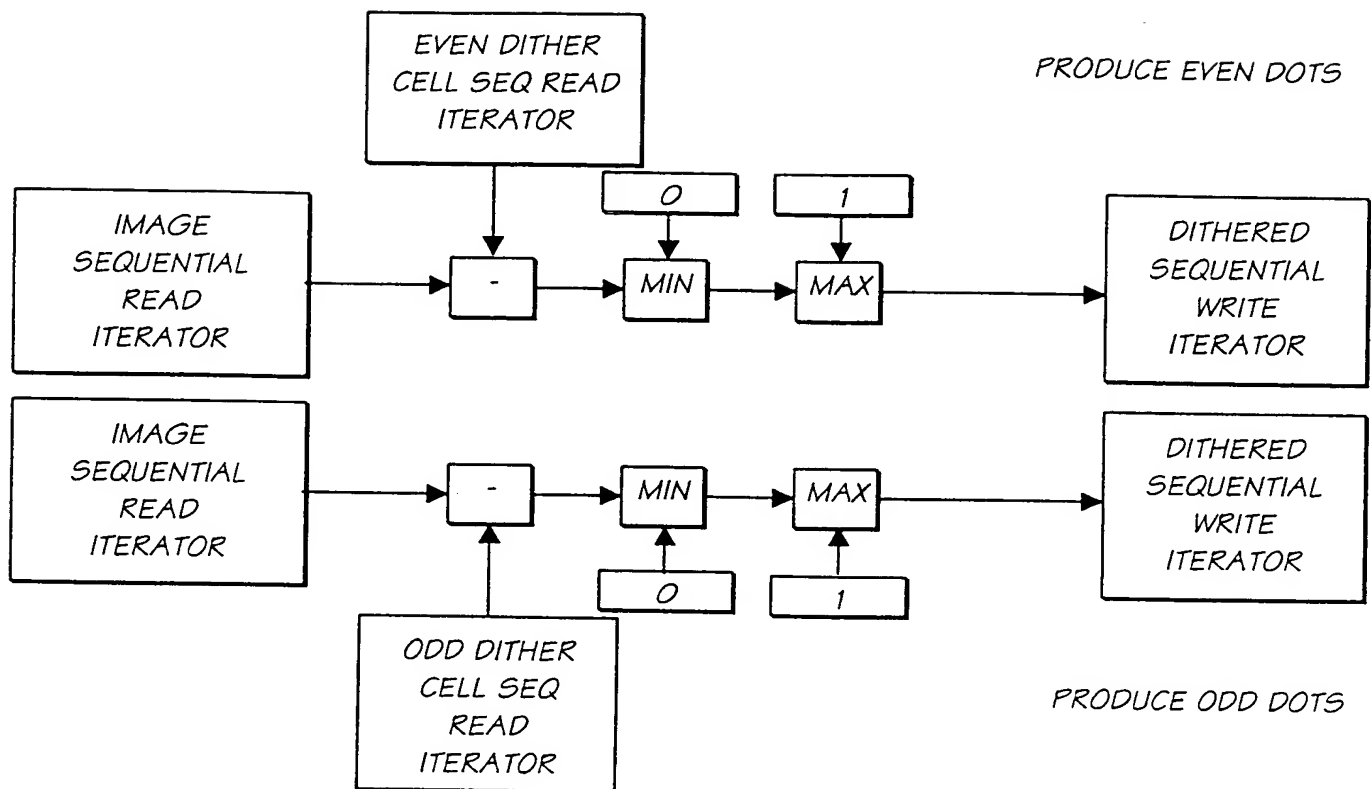


FIG. 157

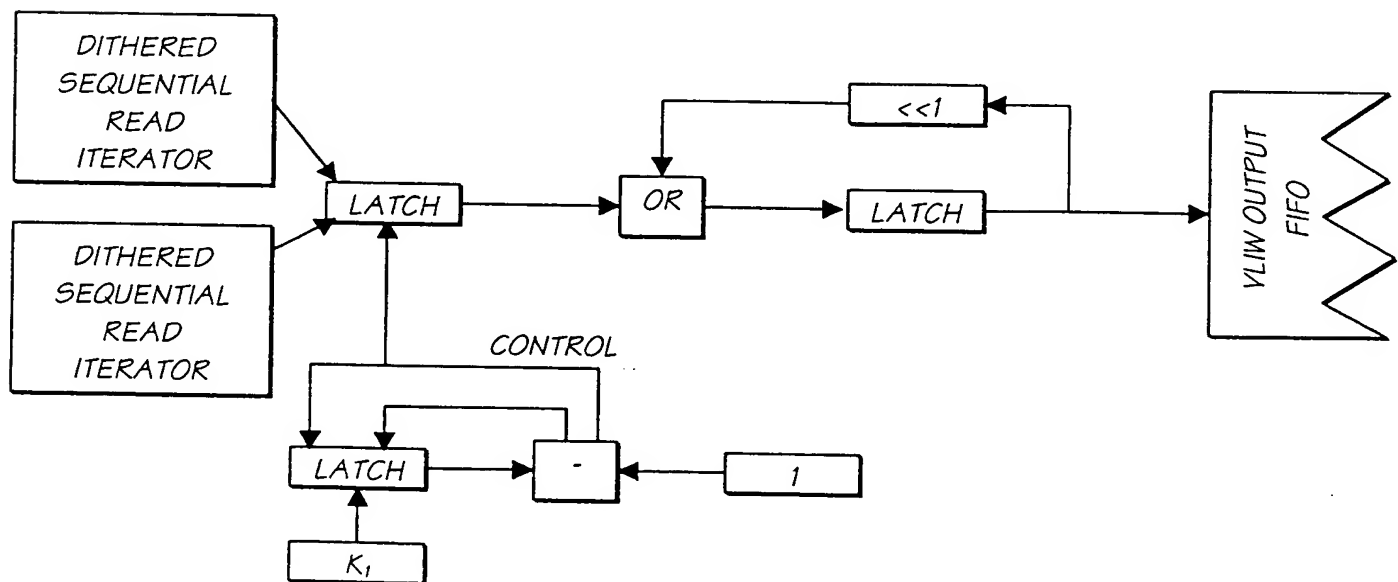
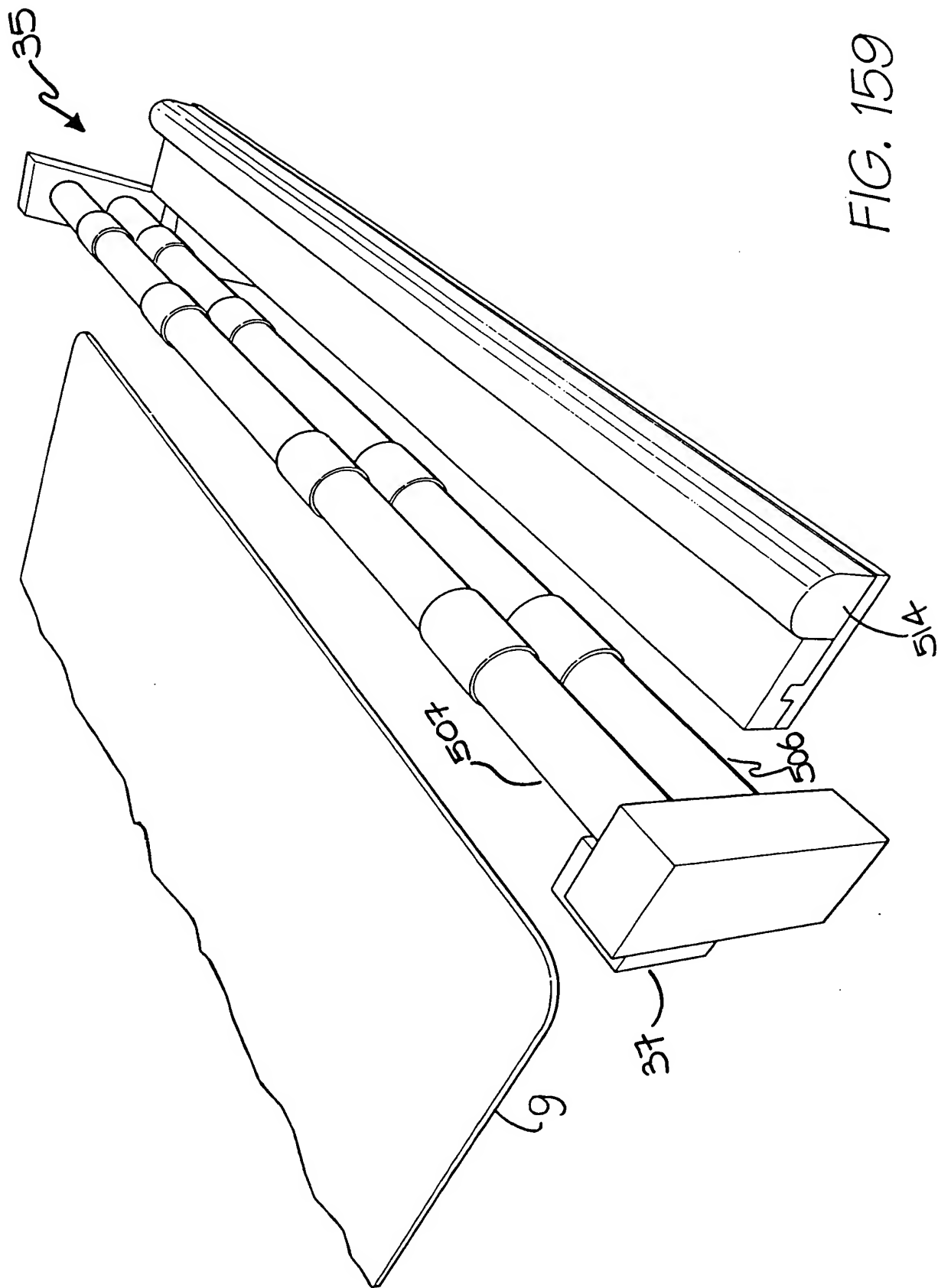


FIG. 158



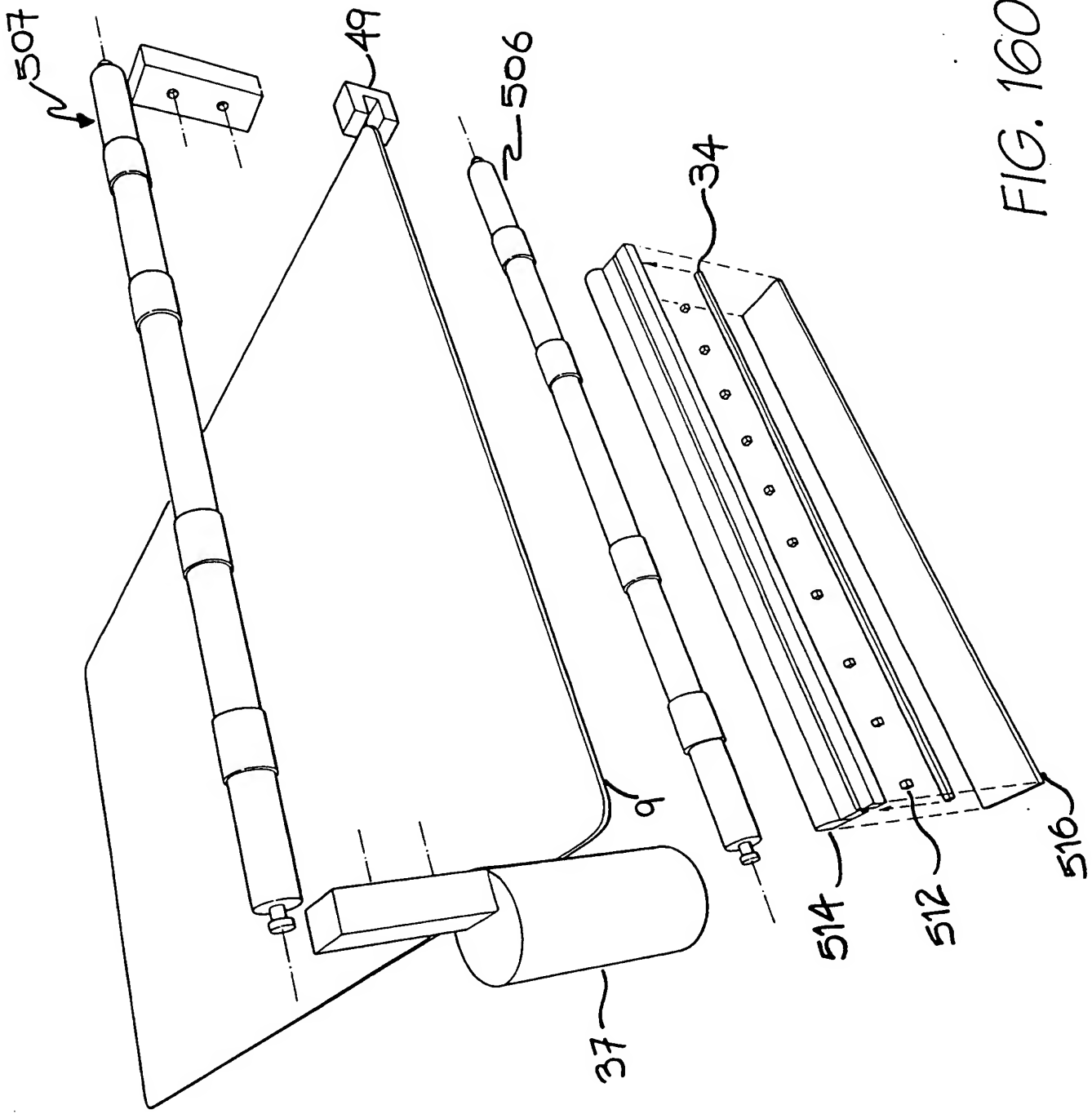
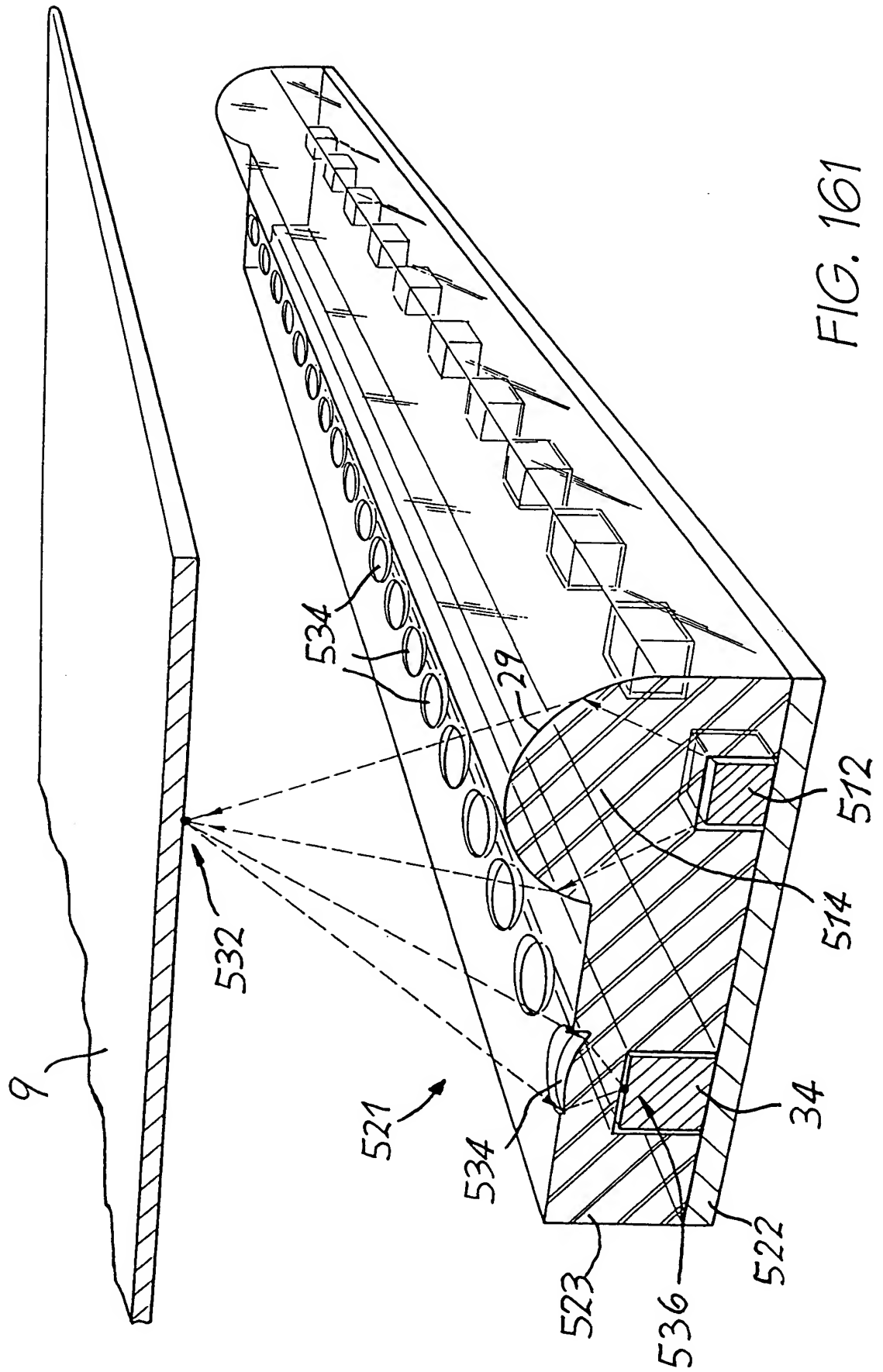
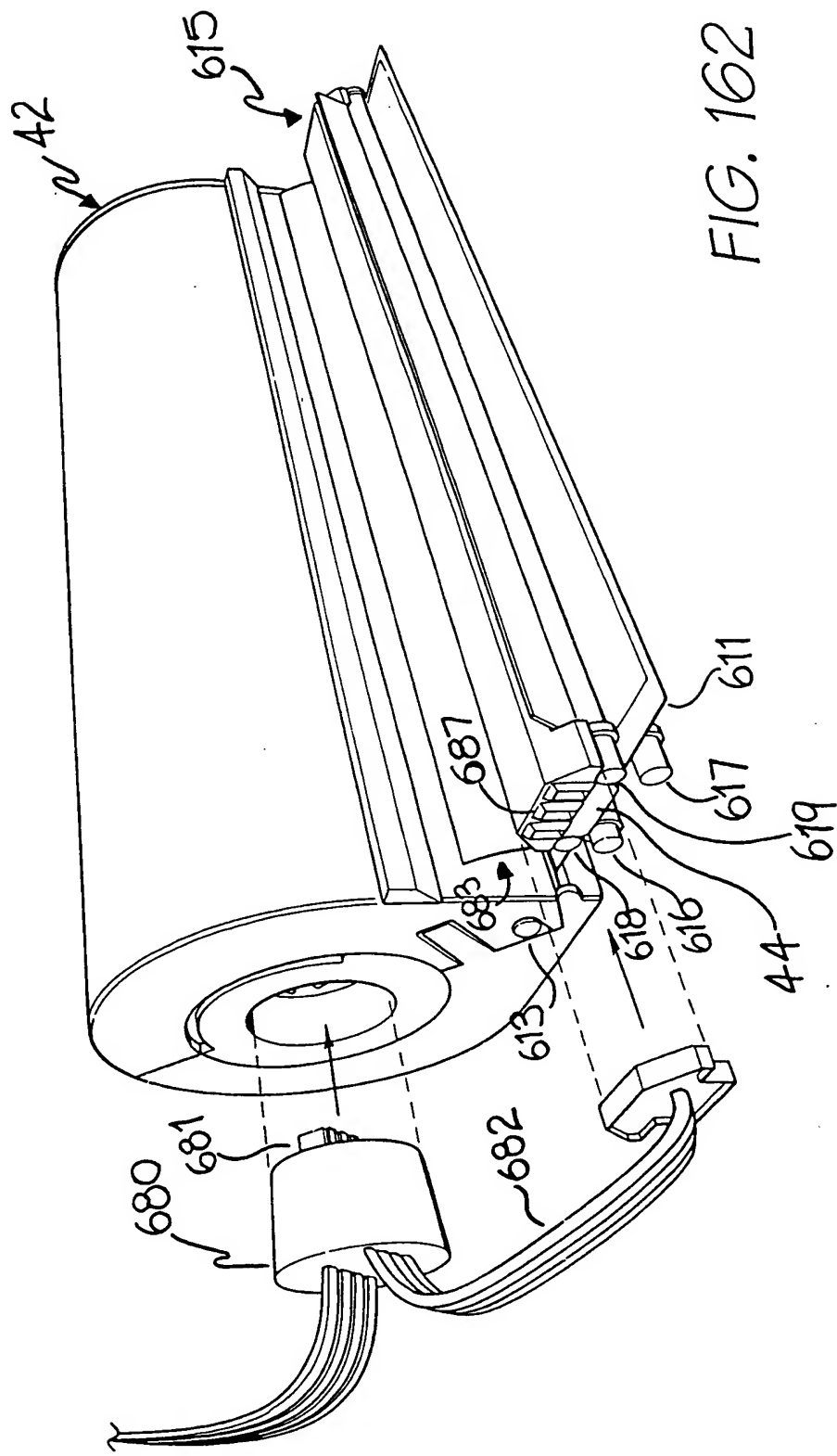


FIG. 160







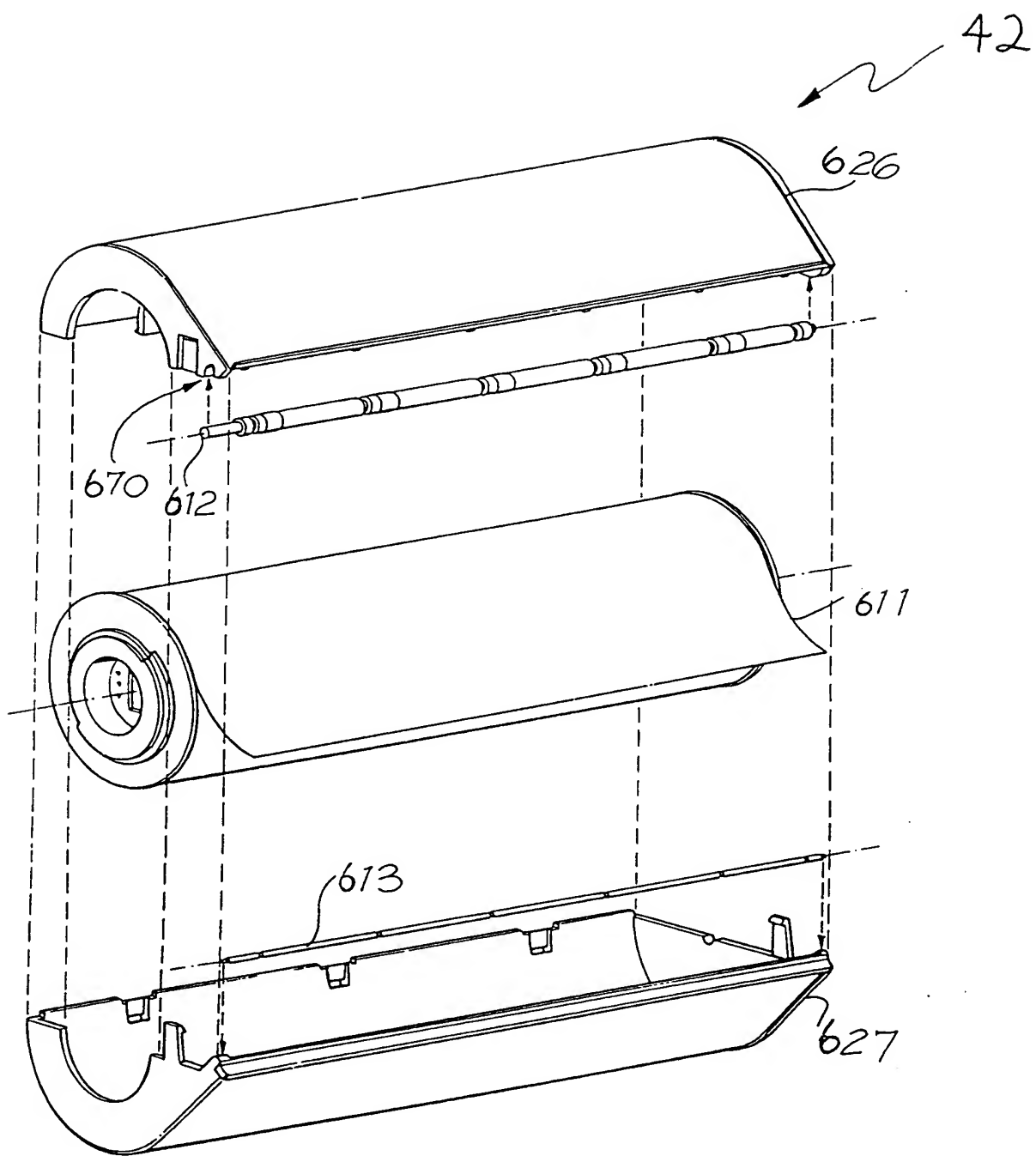


FIG. 163

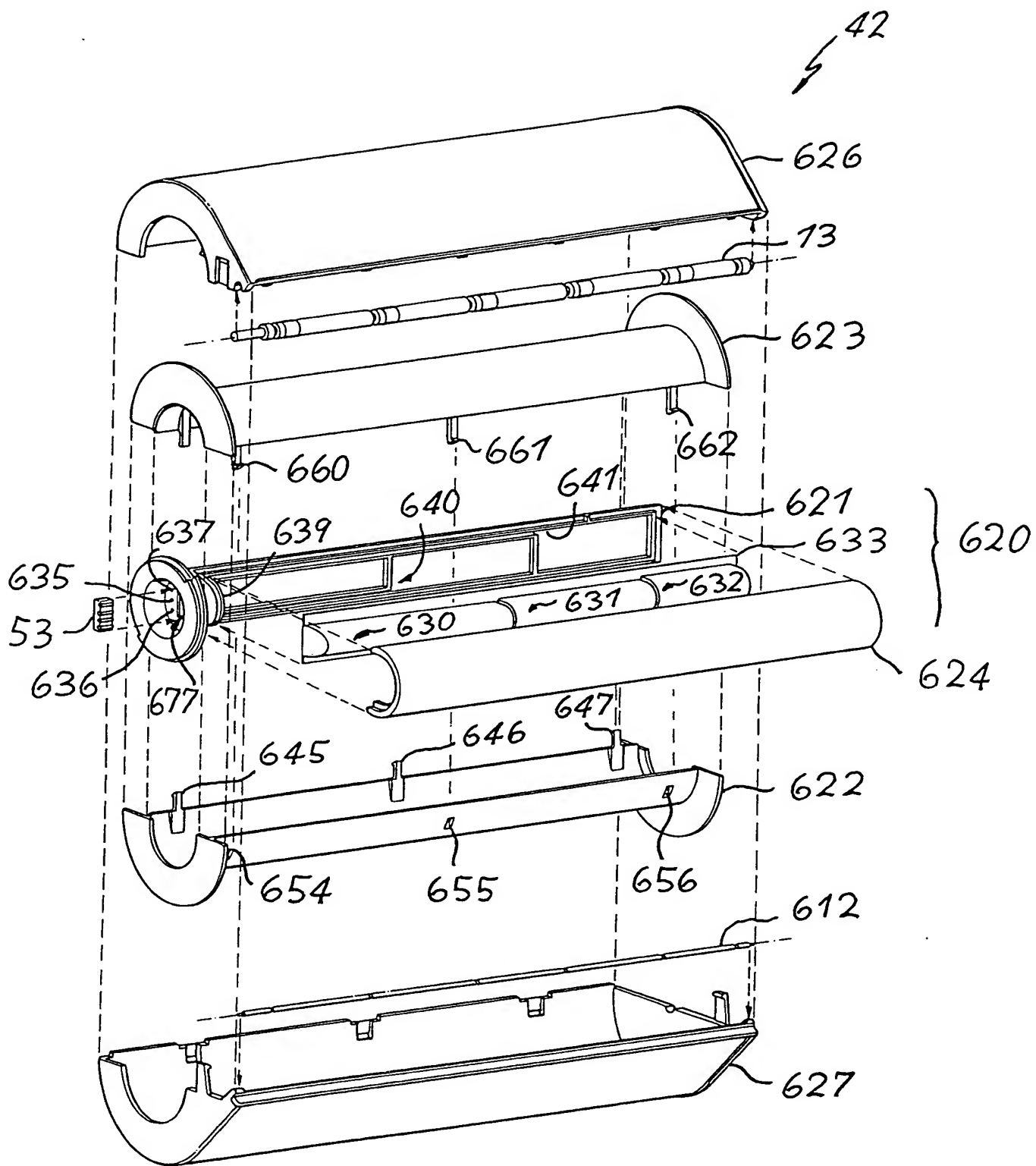


FIG. 164

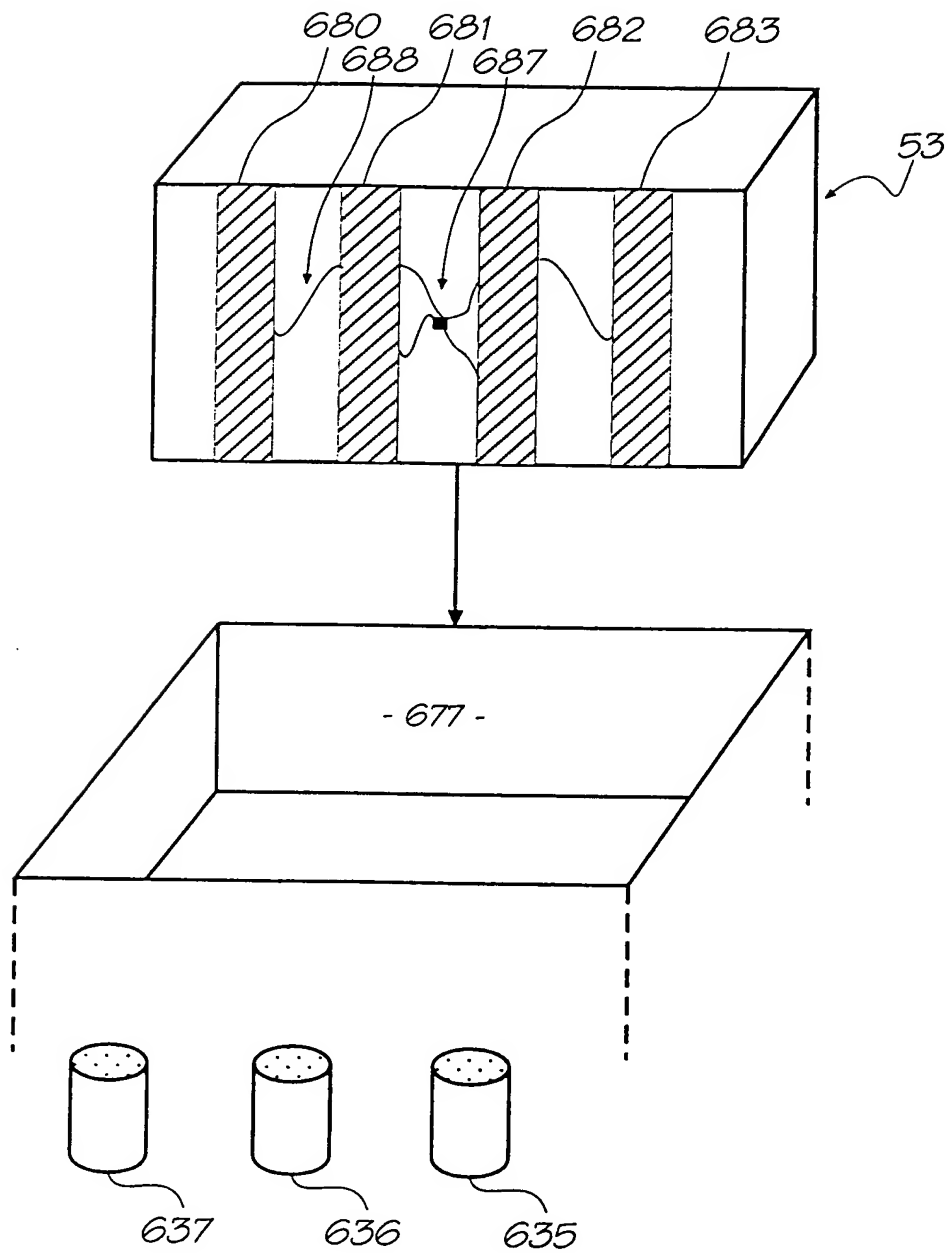


FIG. 165

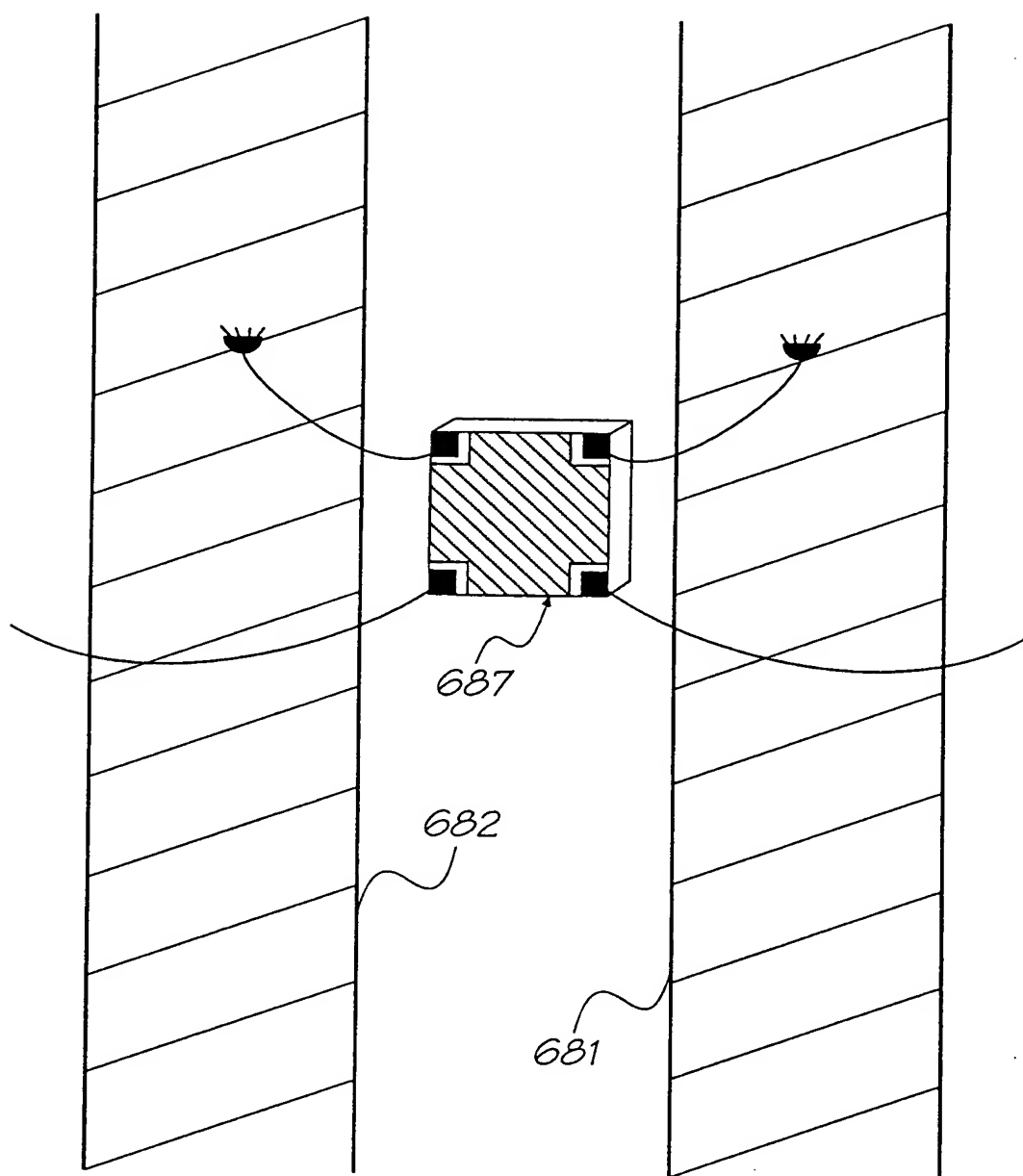


FIG. 166

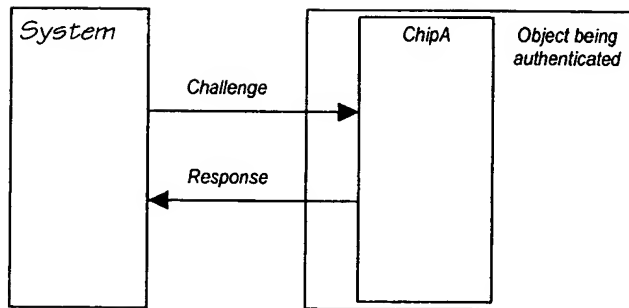


FIG. 167

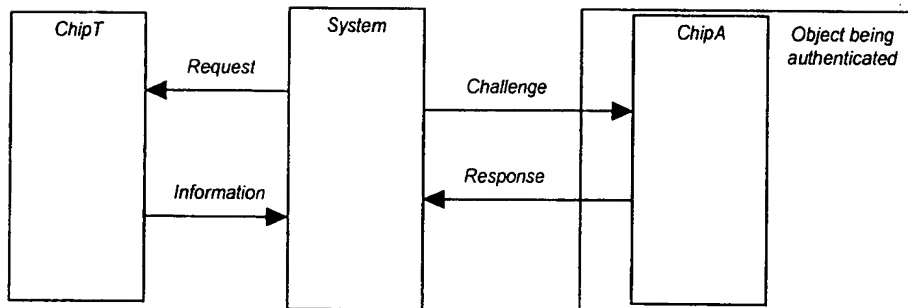


FIG. 168

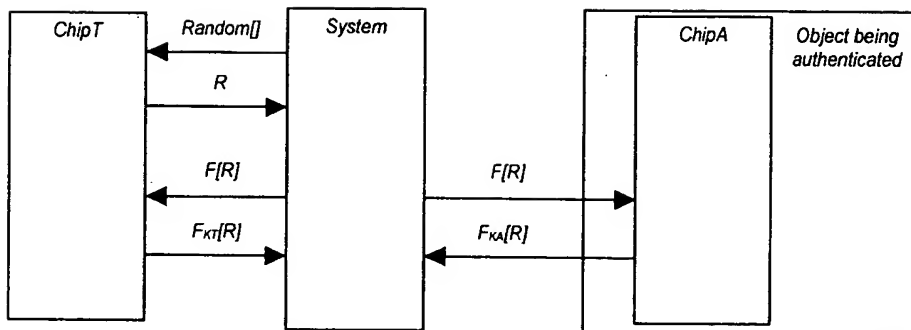


FIG. 169

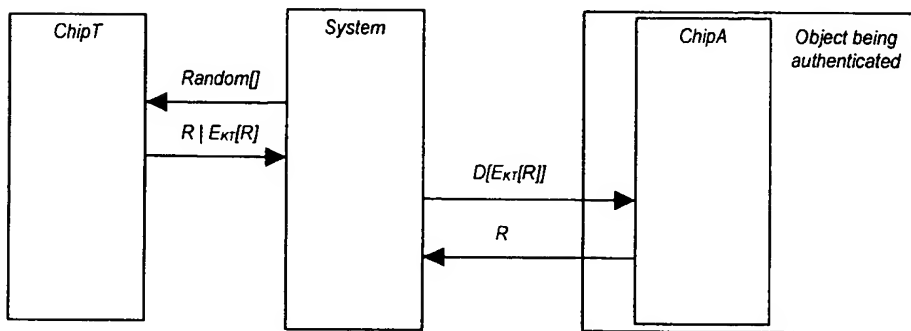


FIG. 170

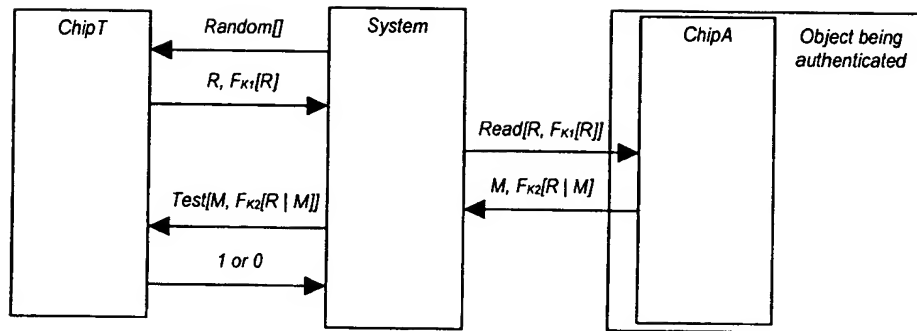


FIG. 171

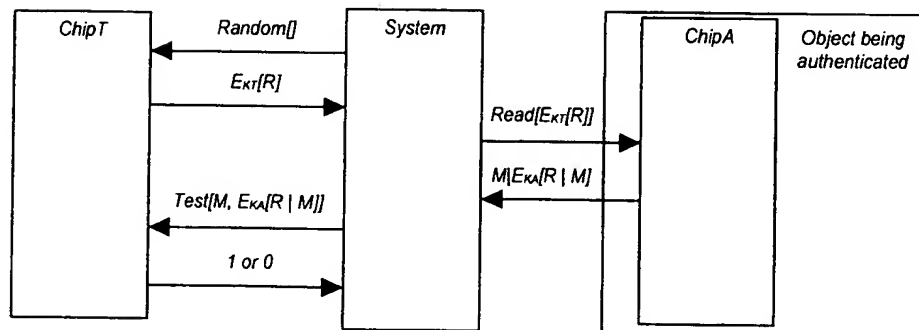


FIG. 172



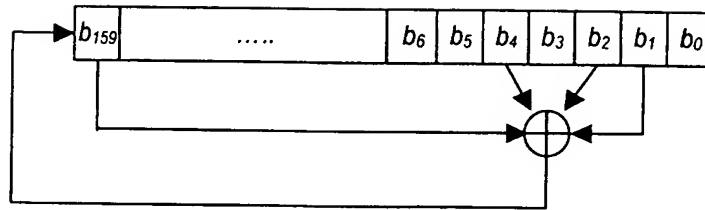


FIG. 173

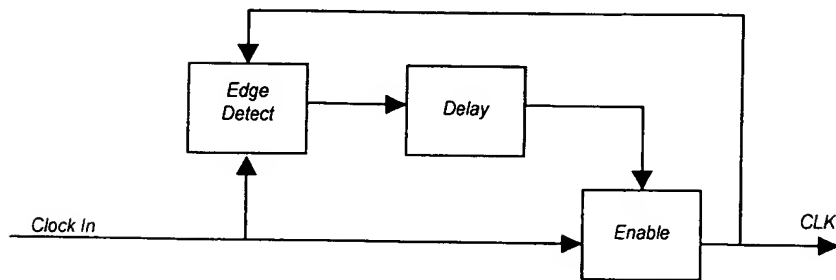


FIG. 174

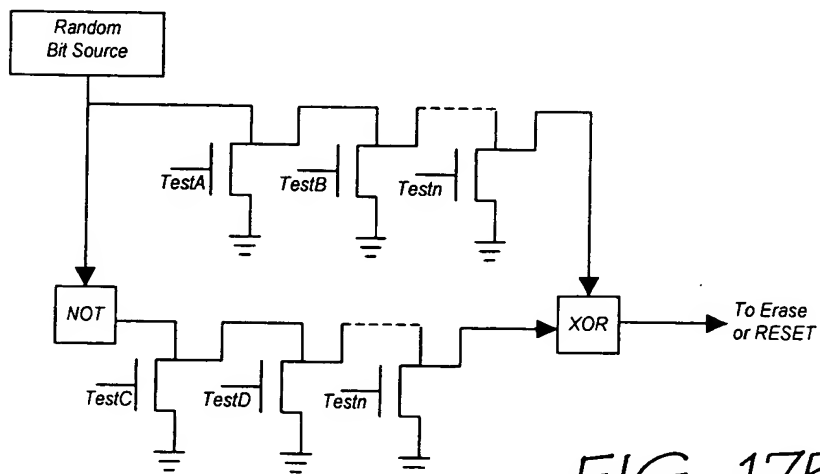


FIG. 175

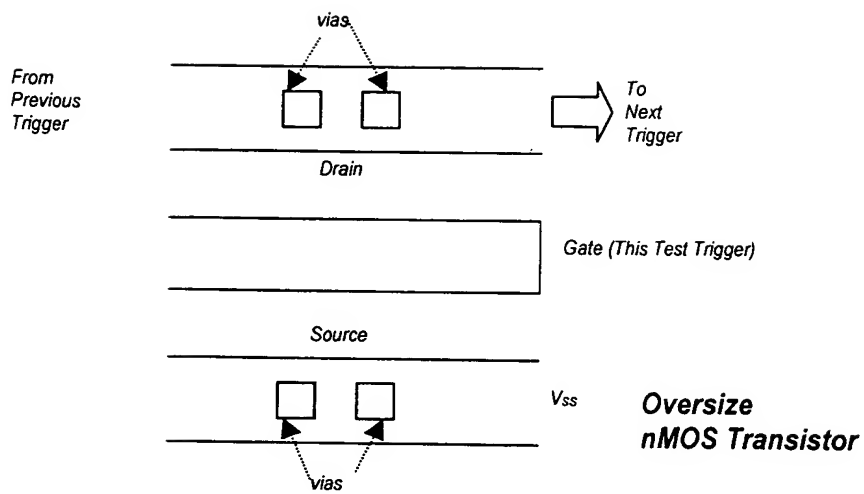


FIG. 176

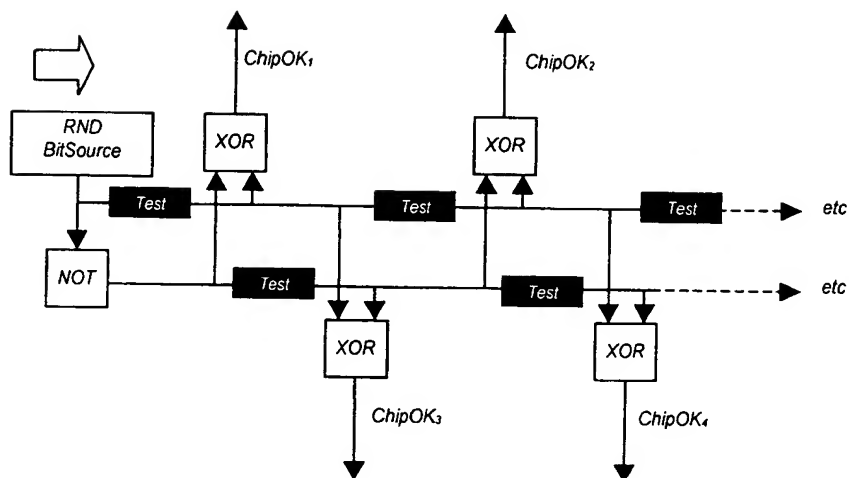


FIG. 177

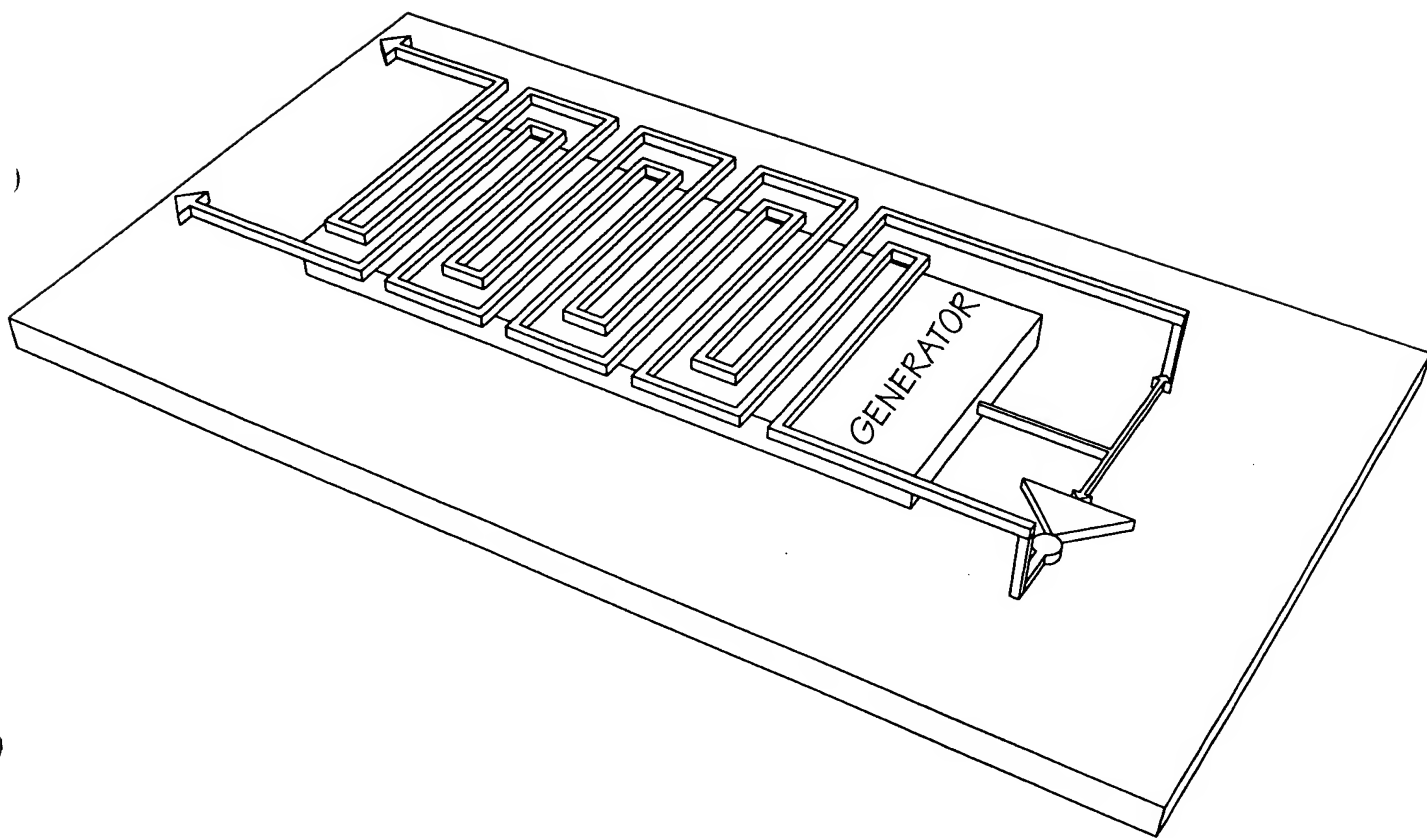


FIG. 178

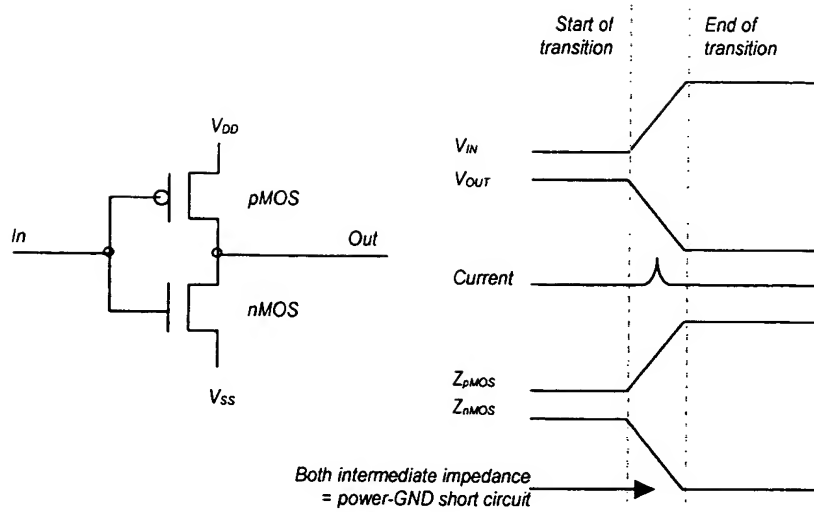


FIG. 179

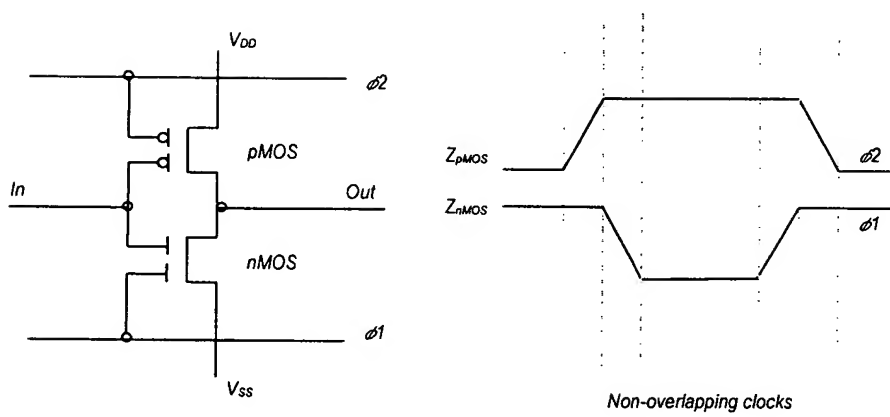


FIG. 180

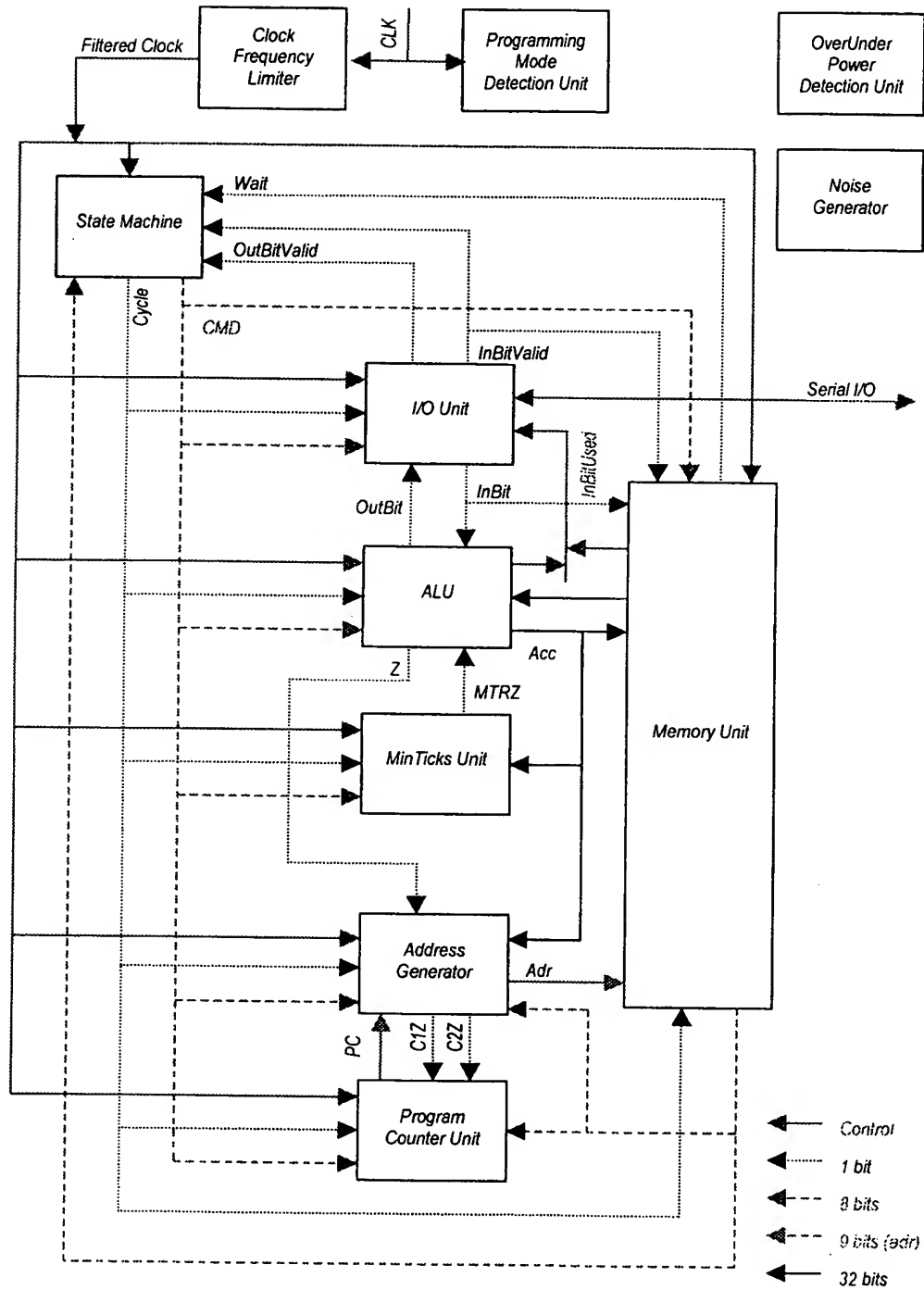


FIG. 181

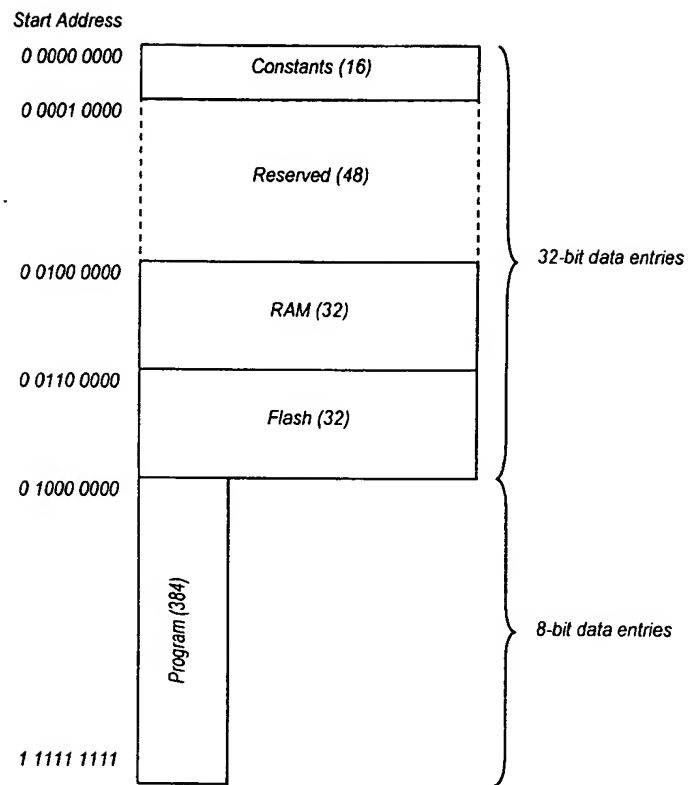


FIG. 182

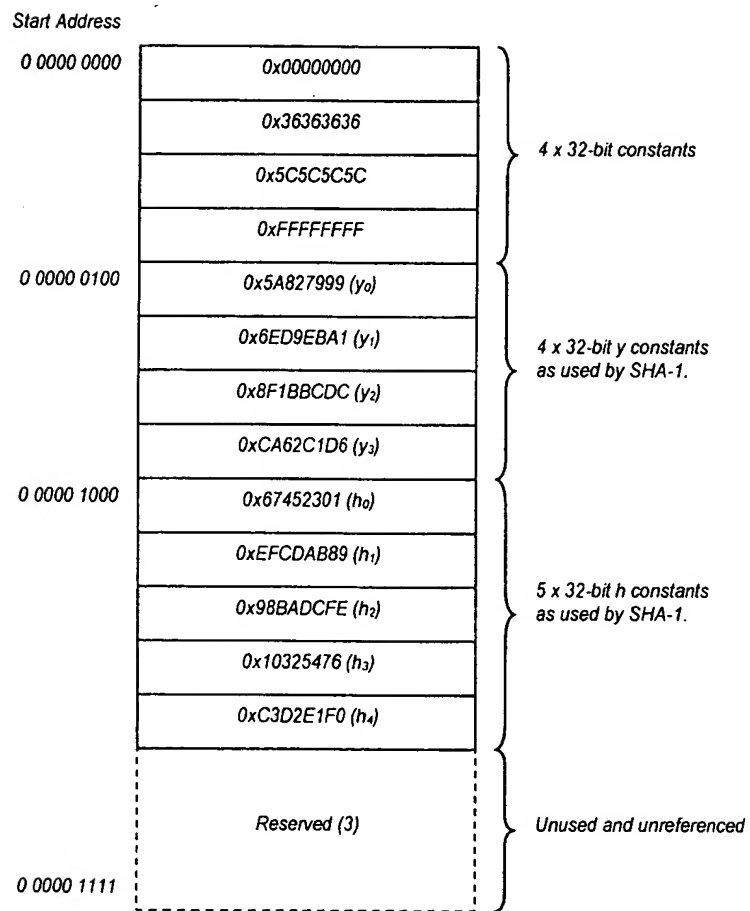


FIG. 183

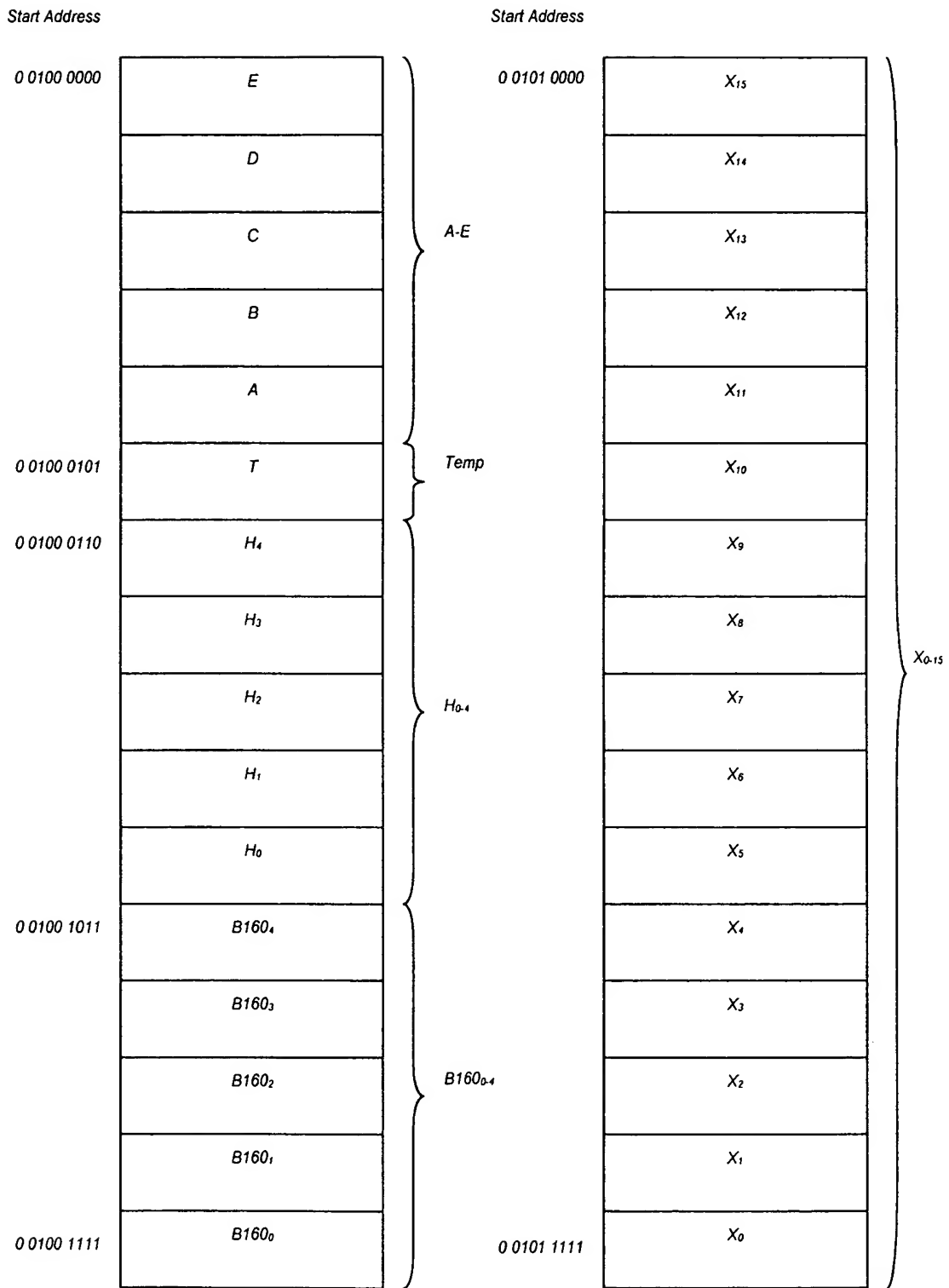


FIG. 184



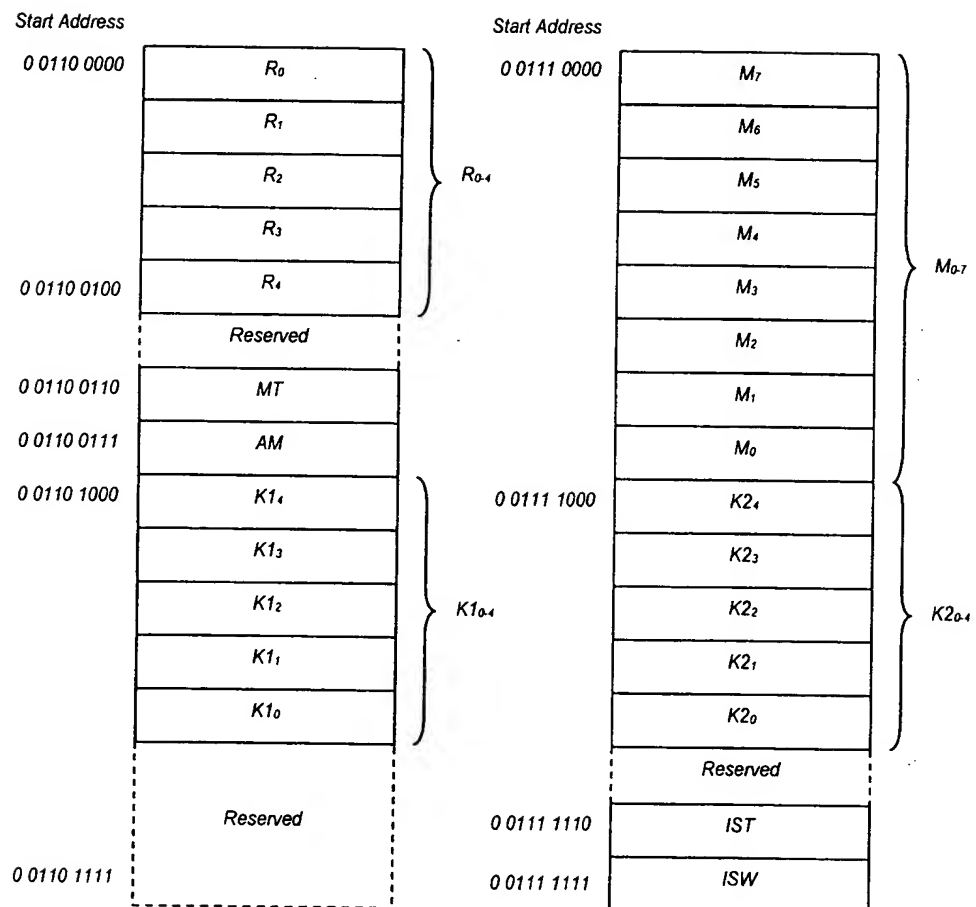


FIG. 185

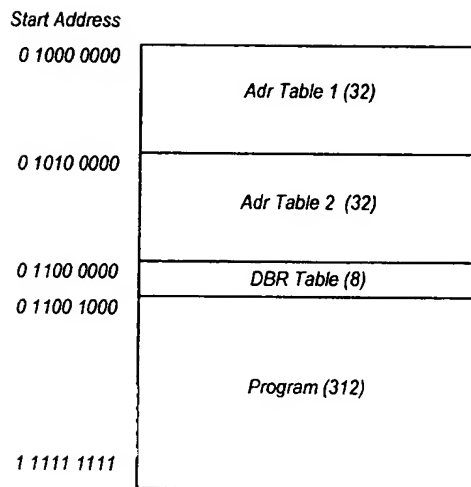


FIG. 186

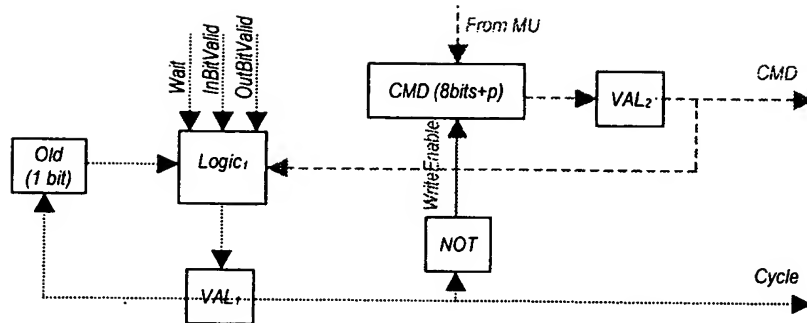


FIG. 187

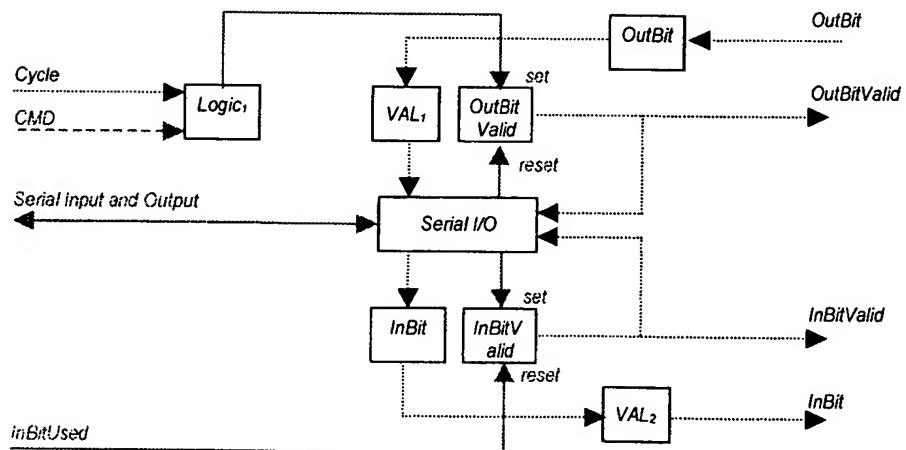


FIG. 188

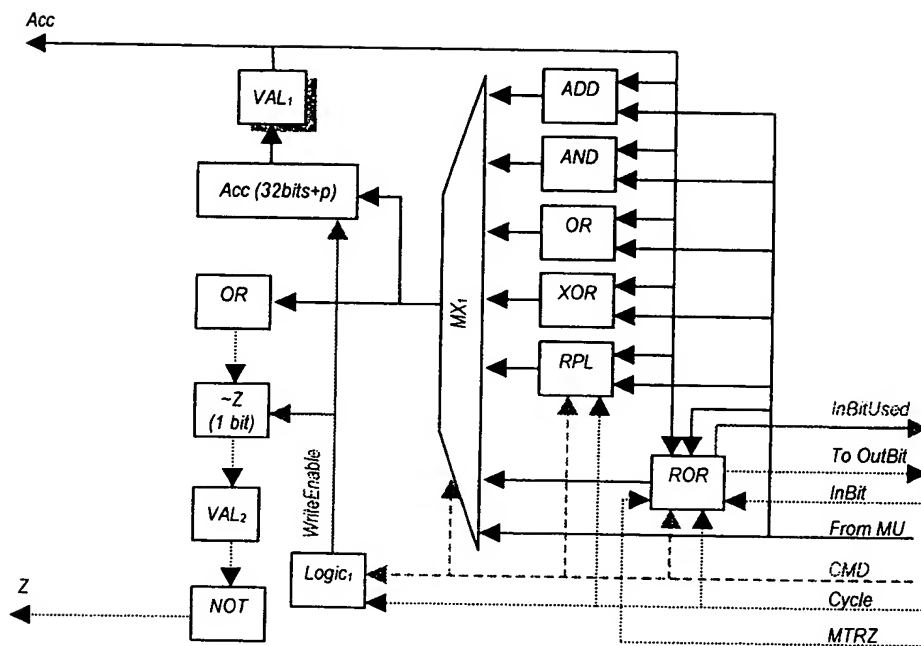


FIG. 189

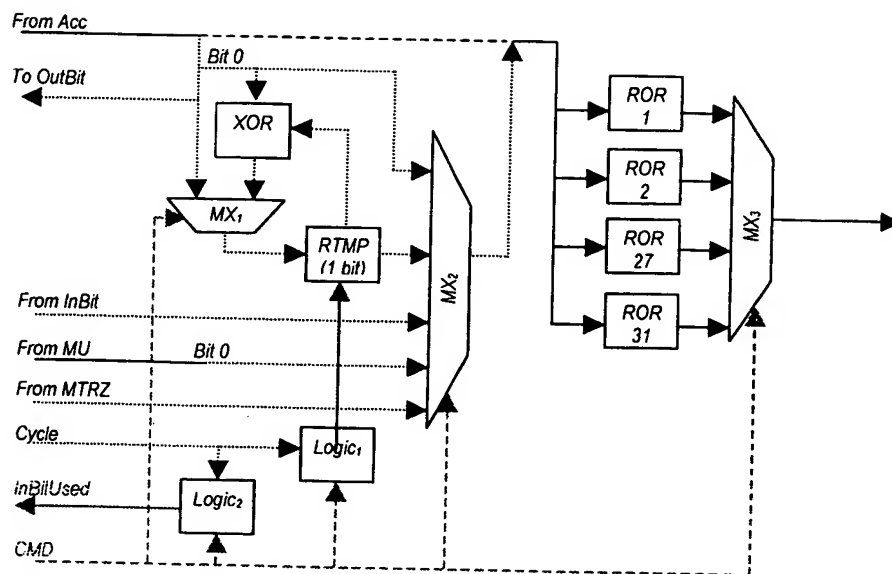


FIG. 190

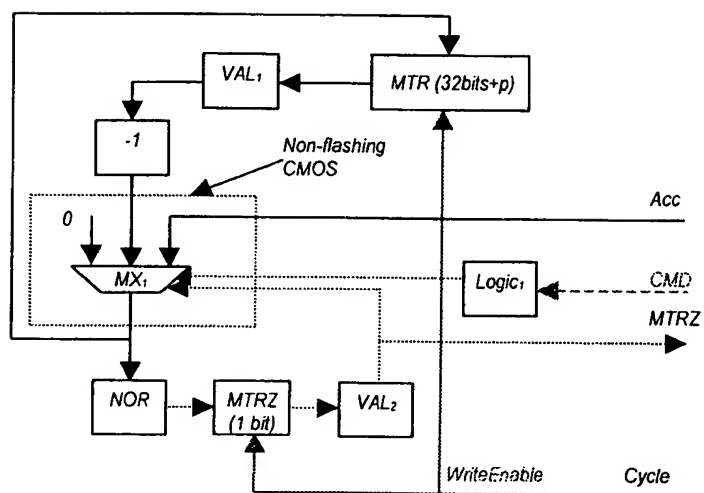


FIG. 191

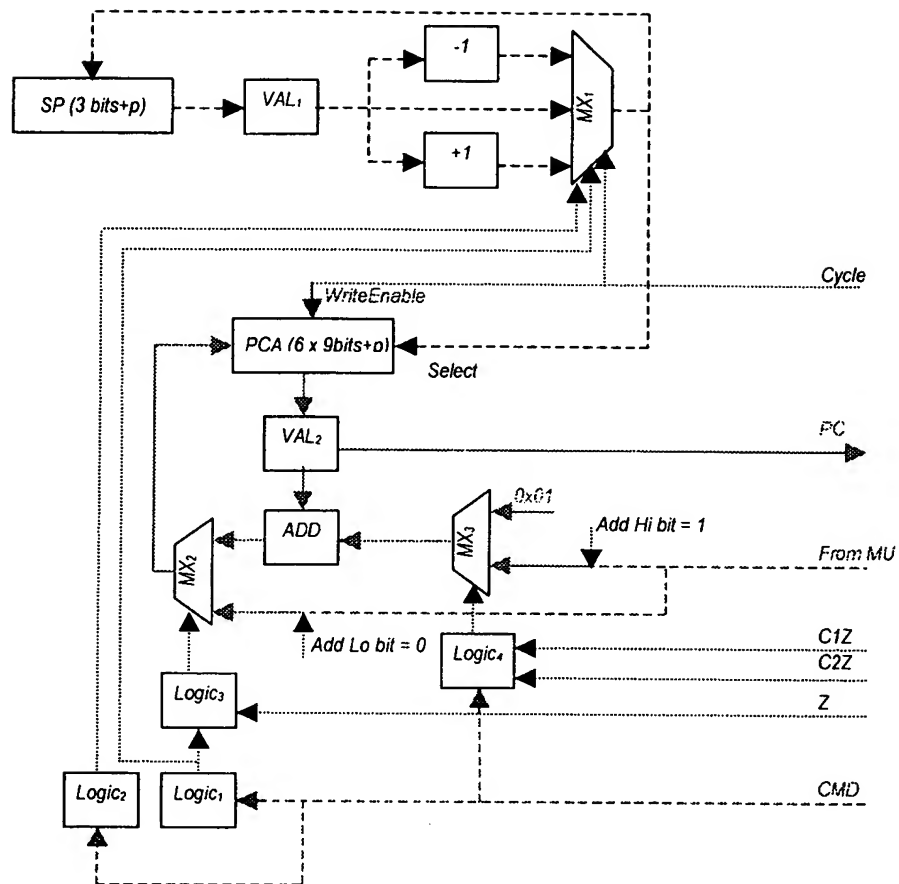


FIG. 192

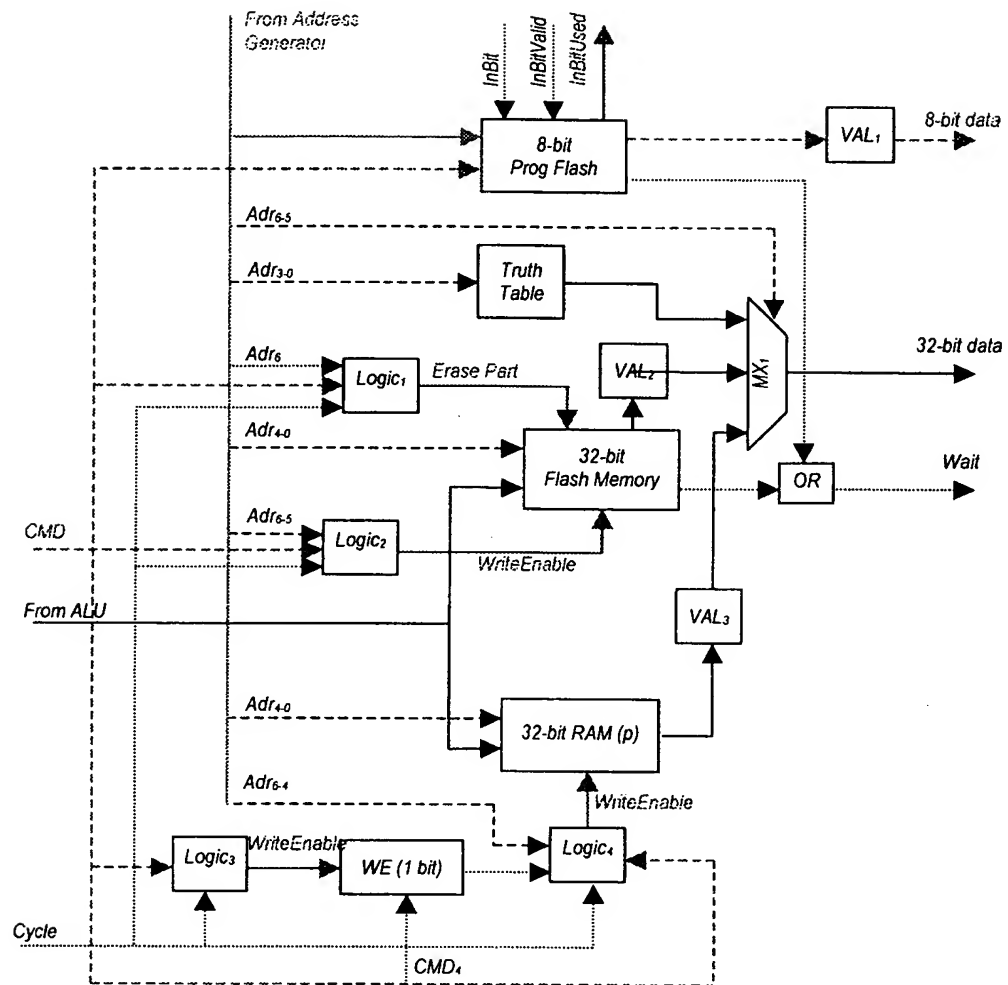


FIG. 193



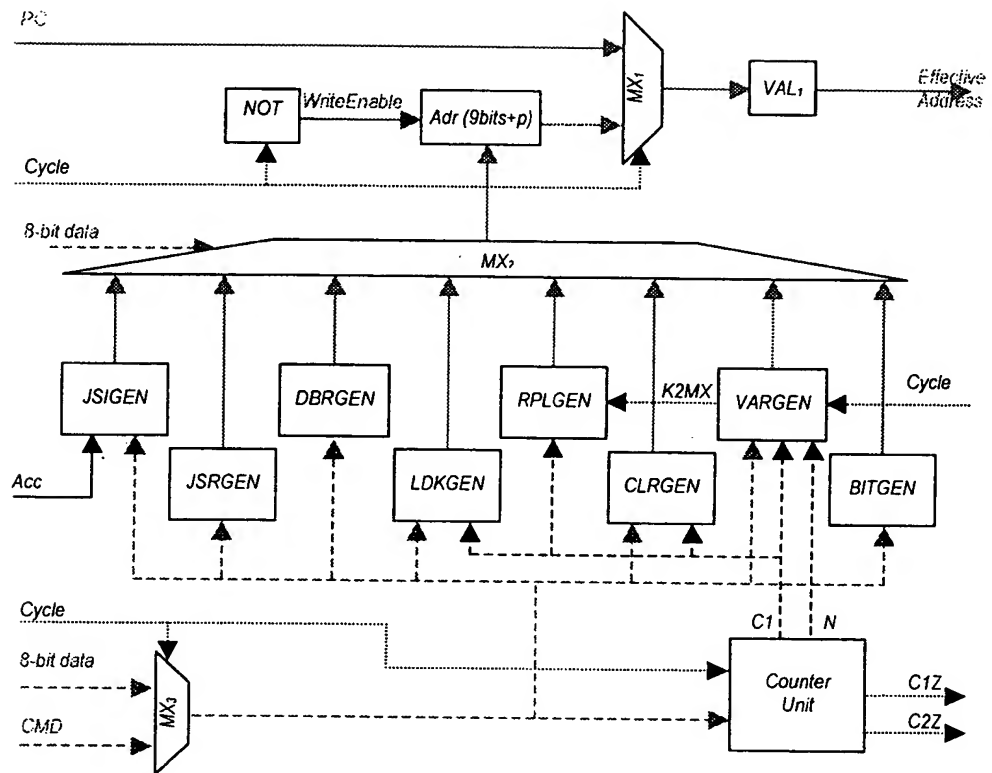


FIG. 194

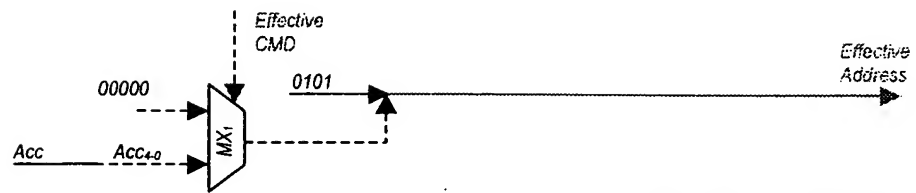


FIG. 195

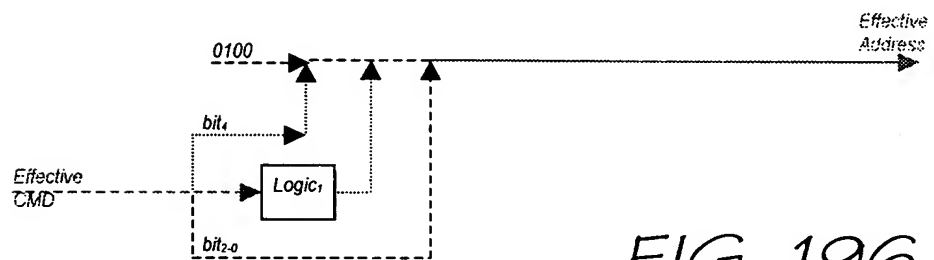


FIG. 196

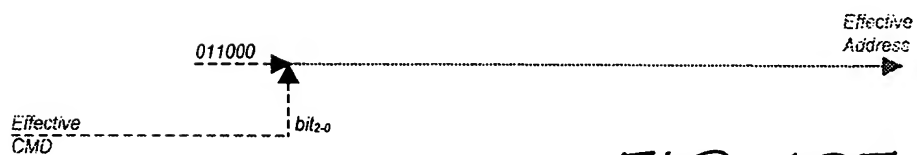


FIG. 197

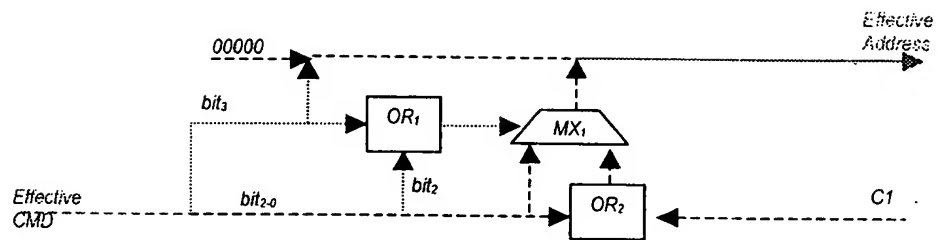


FIG. 198

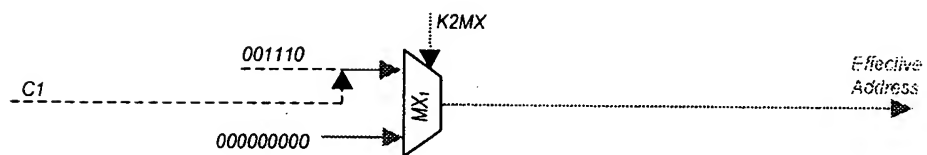


FIG. 199

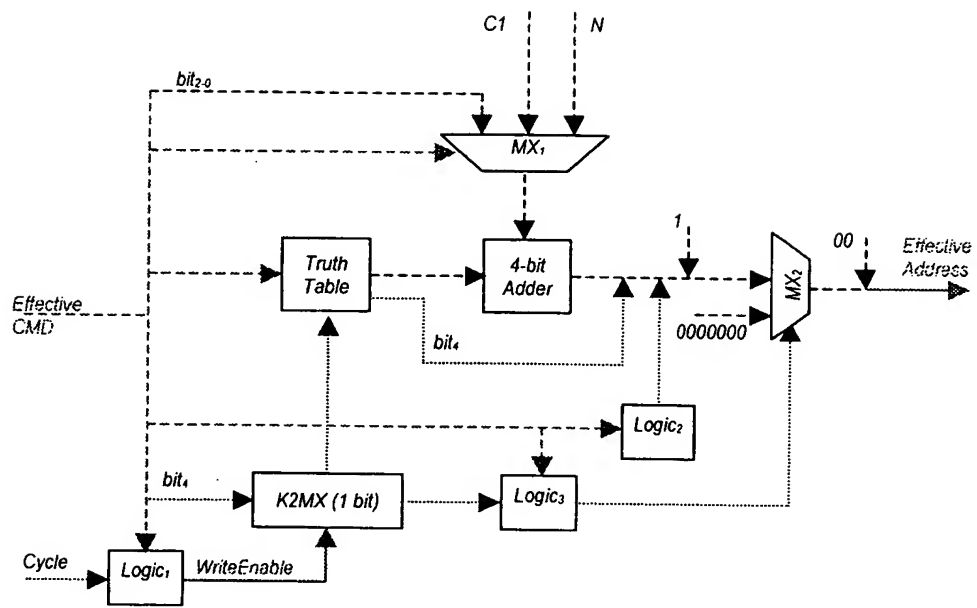


FIG. 200

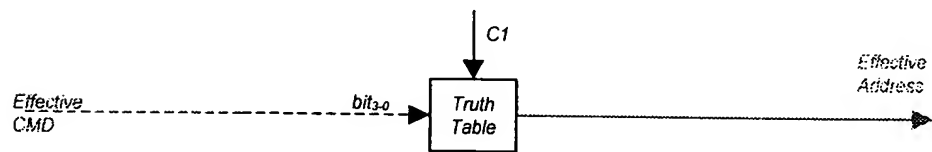


FIG. 201

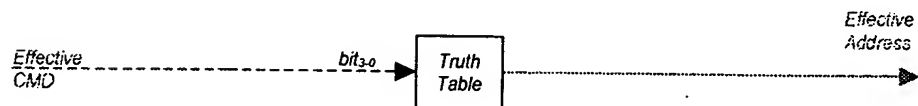


FIG. 202

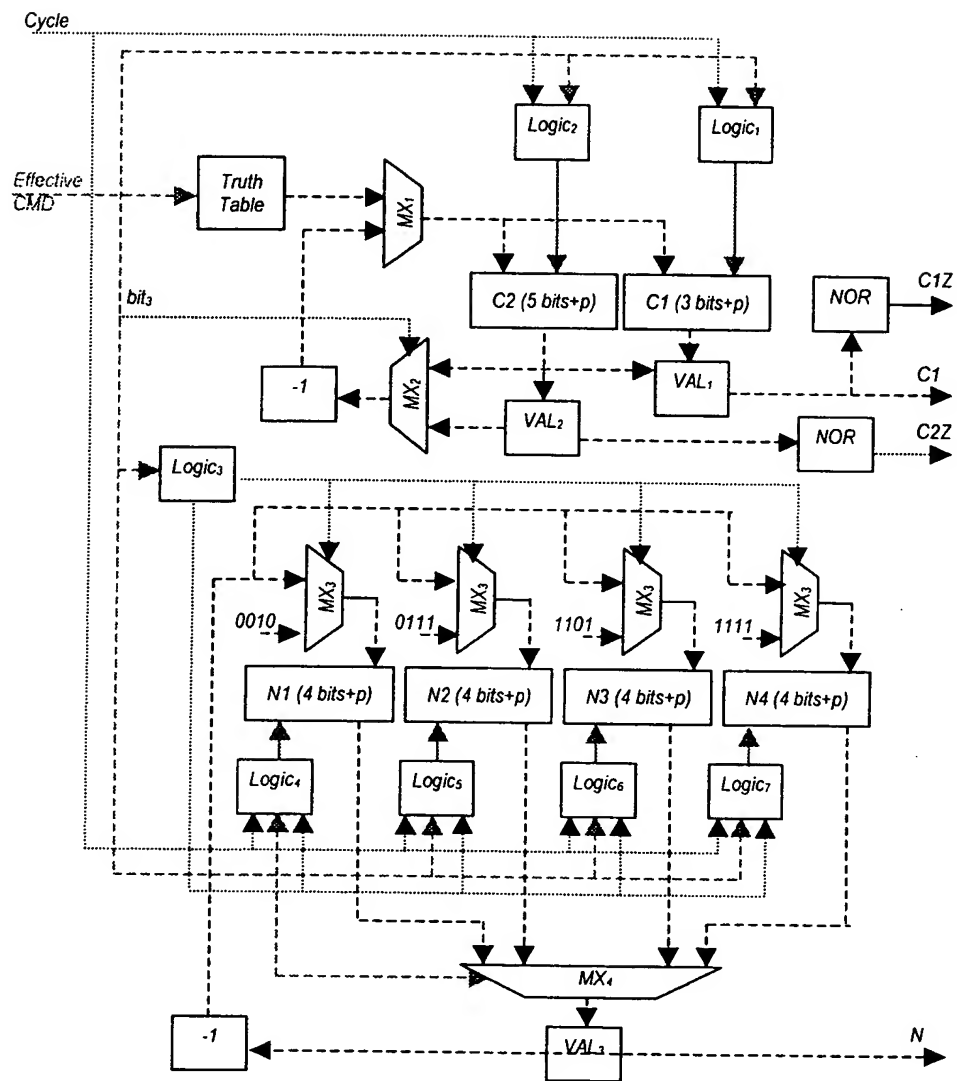
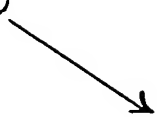


FIG. 203

705



Data Type	Bits
Factory code	16
Batch number	32
Serial number	48
Manufacturing date	16
Media length	24
Media type	8
Preprinted media length	16
Cyan ink viscosity	8
Magenta ink viscosity	8
Yellow ink viscosity	8
Cyan drop volume	8
Magenta drop volume	8
Yellow drop volume	8
Cyan ink color	24
Magenta ink color	24
Yellow ink color	24
Remaining-media length indicator	16
Authentication key	128
Copyrightable bit pattern	512
Reserved for camera use	88
Total	1024

728



FIG. 204

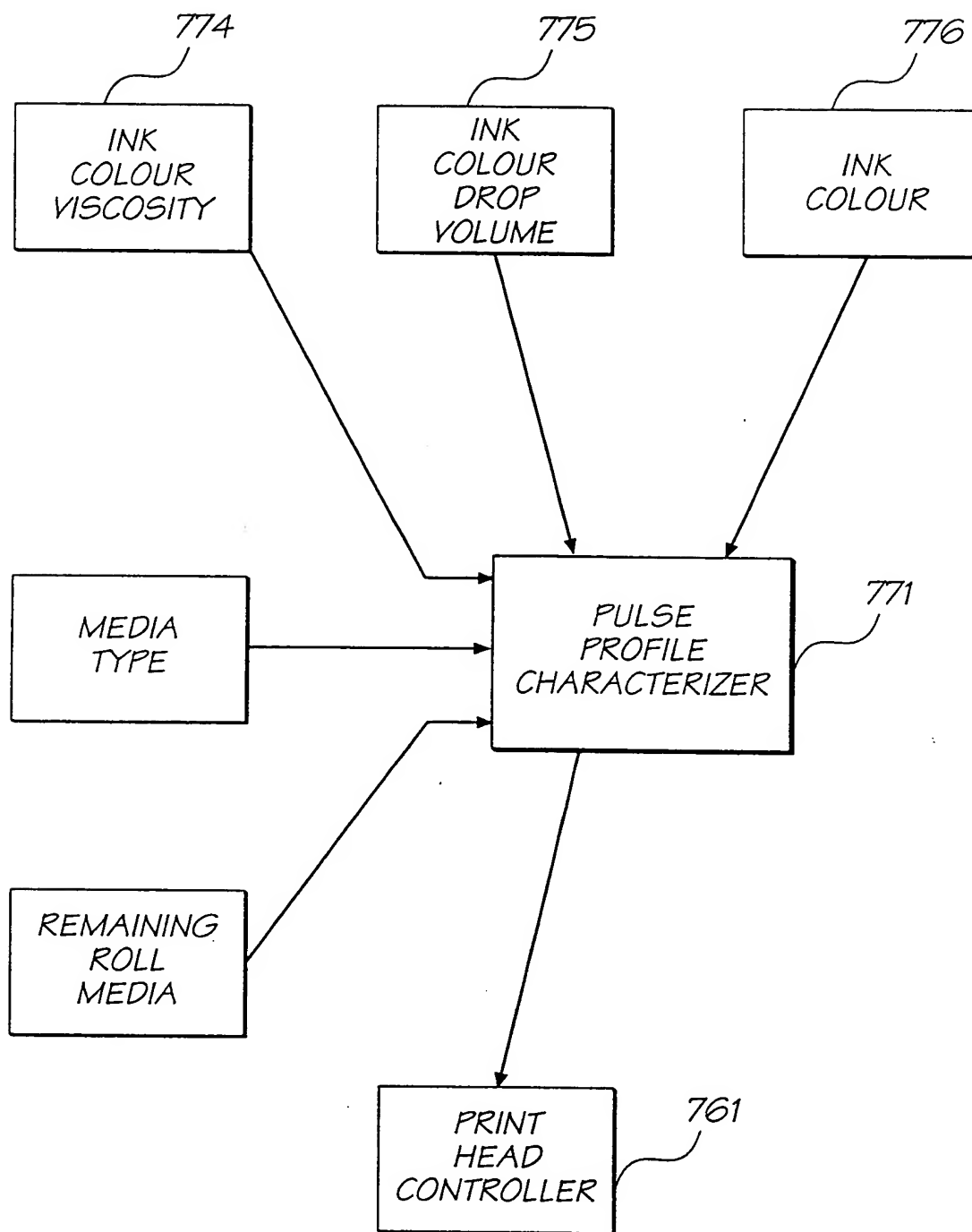


FIG. 205

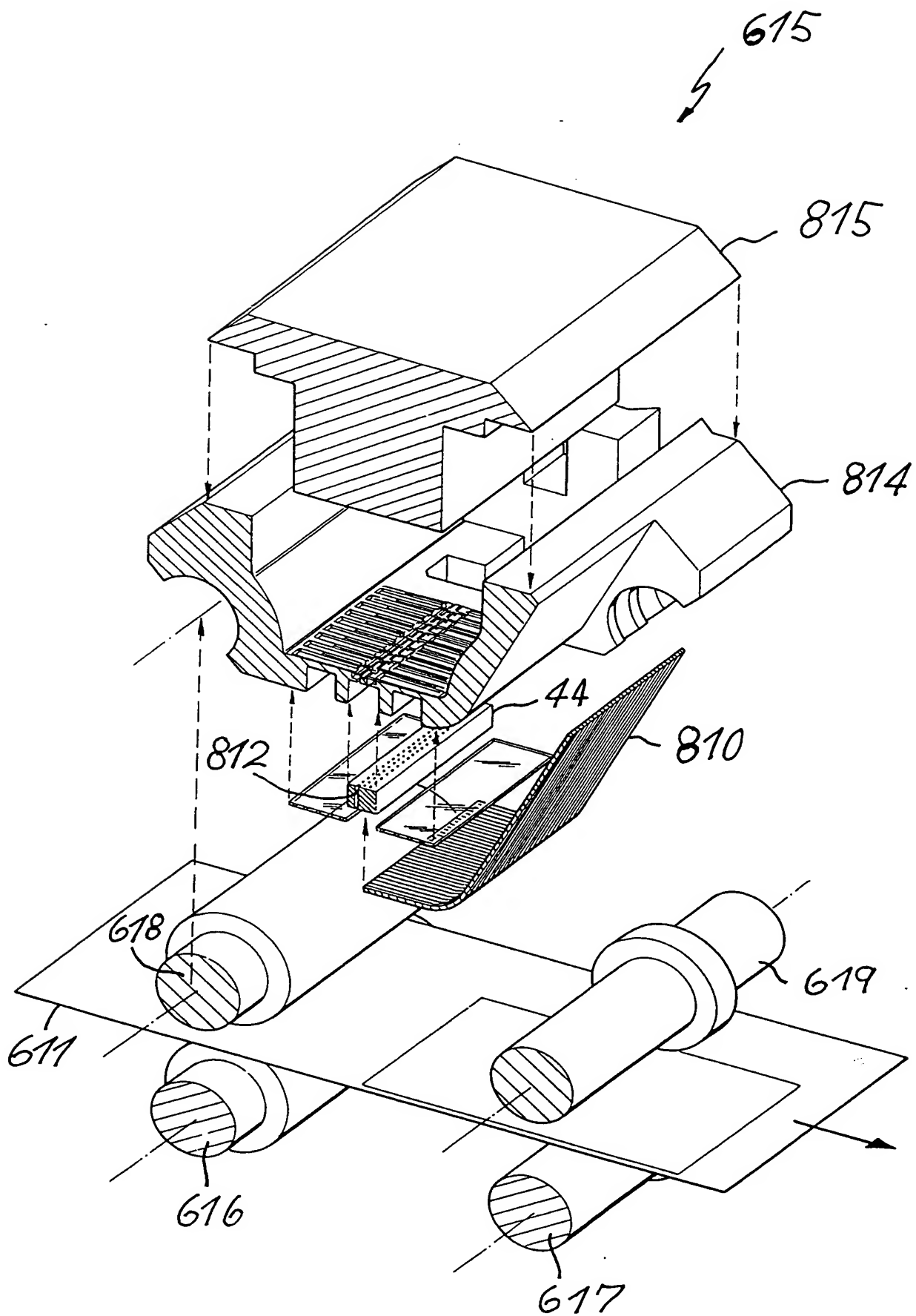


FIG. 206



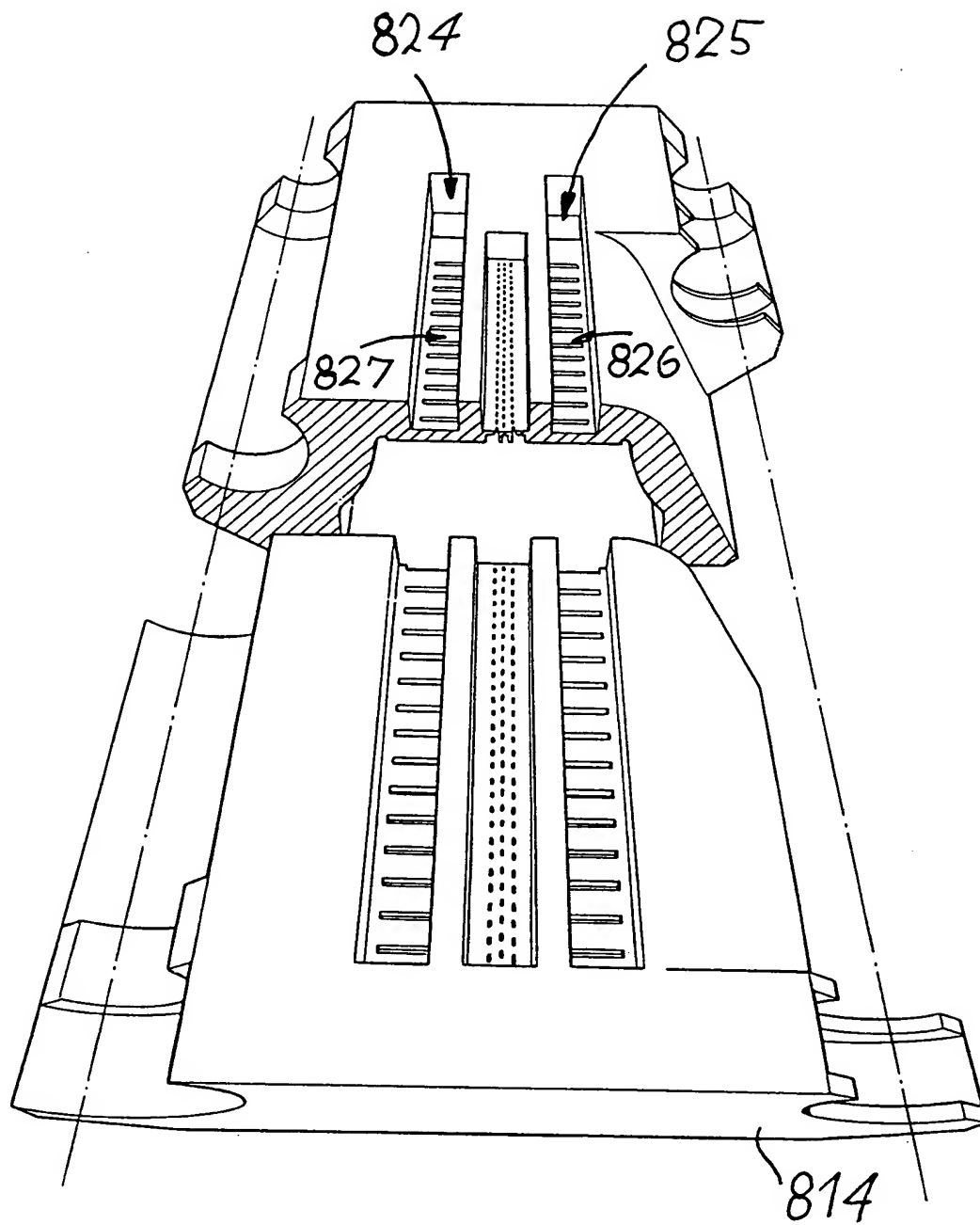


FIG. 207

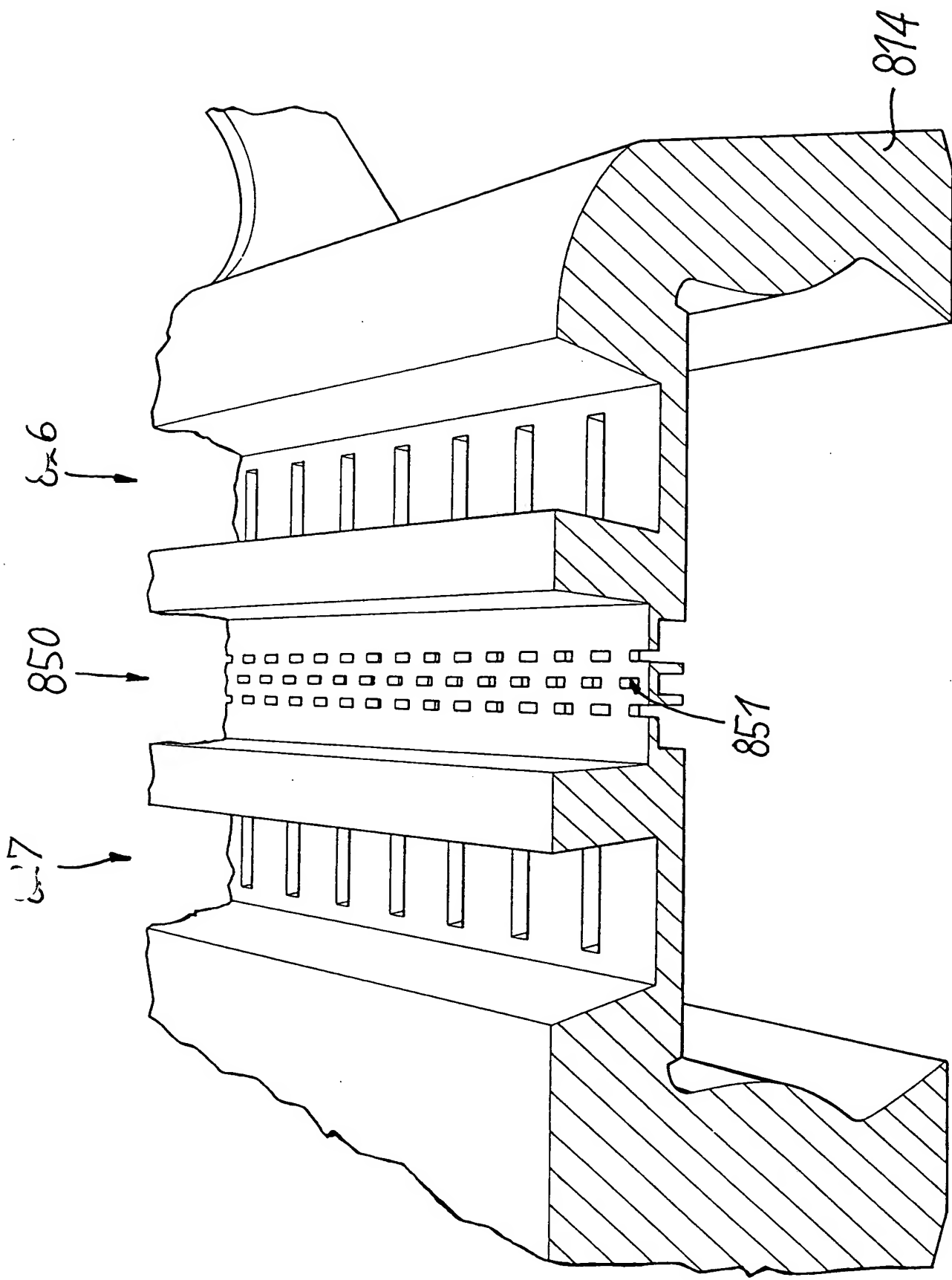


FIG. 208

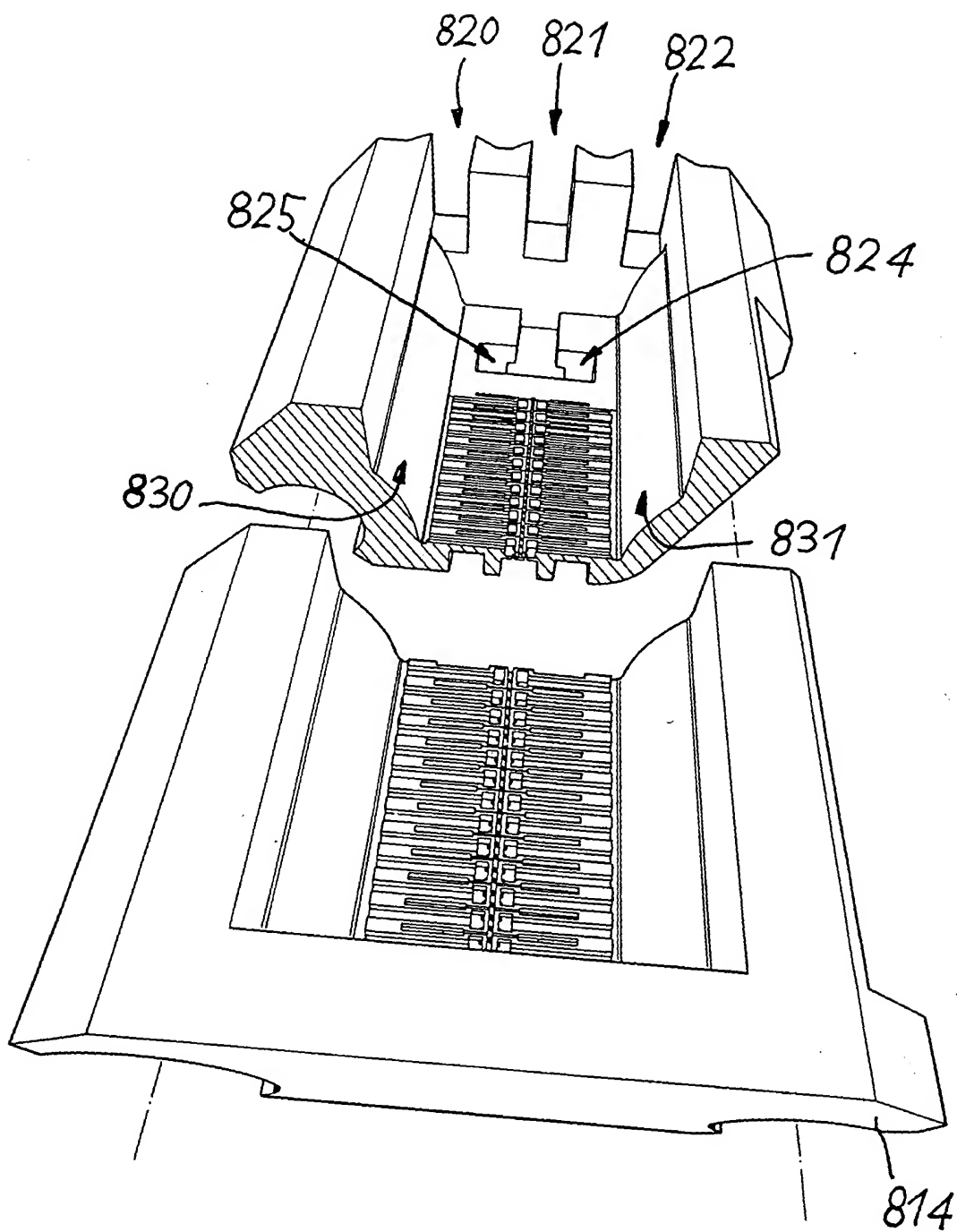


FIG. 209

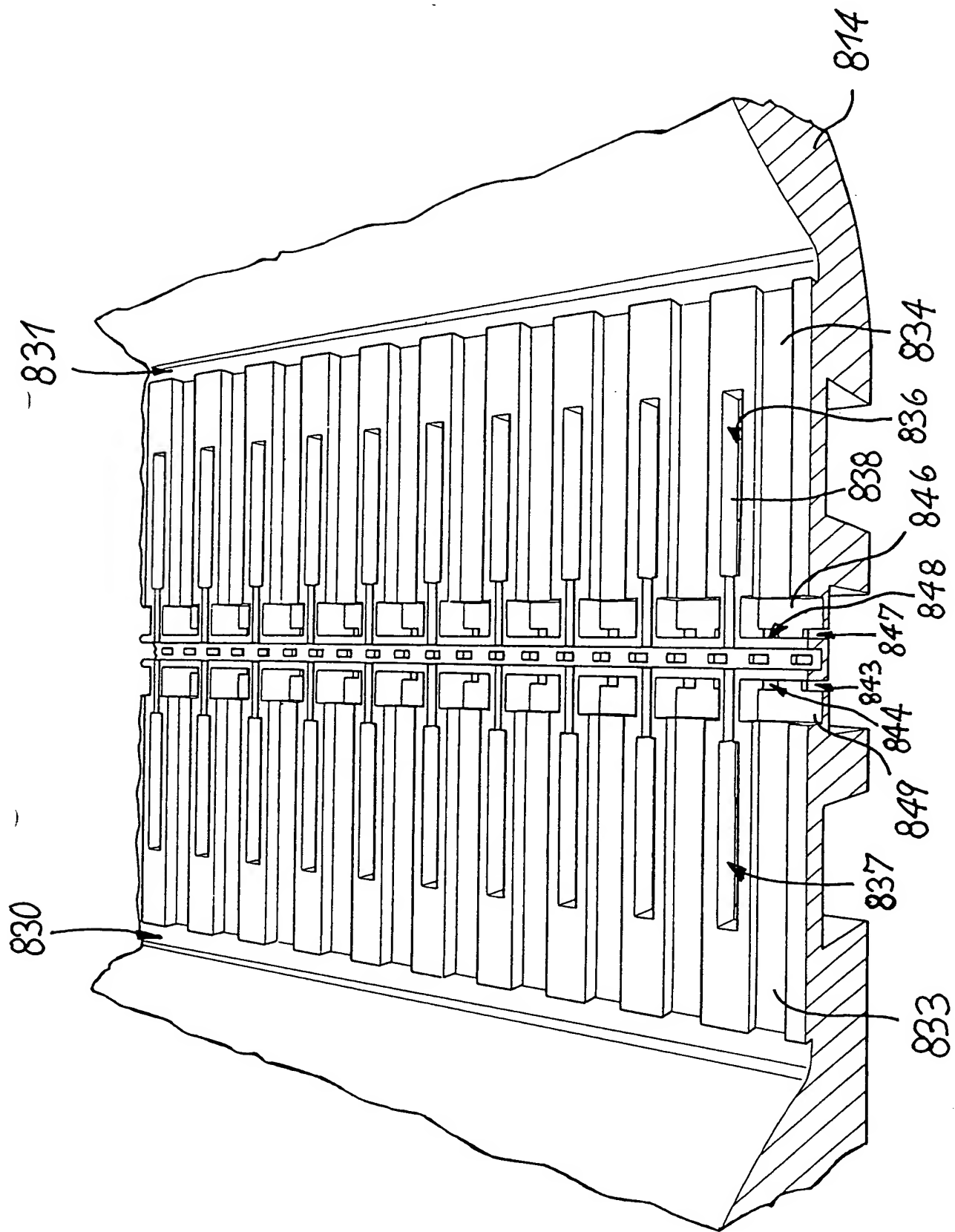


FIG. 210

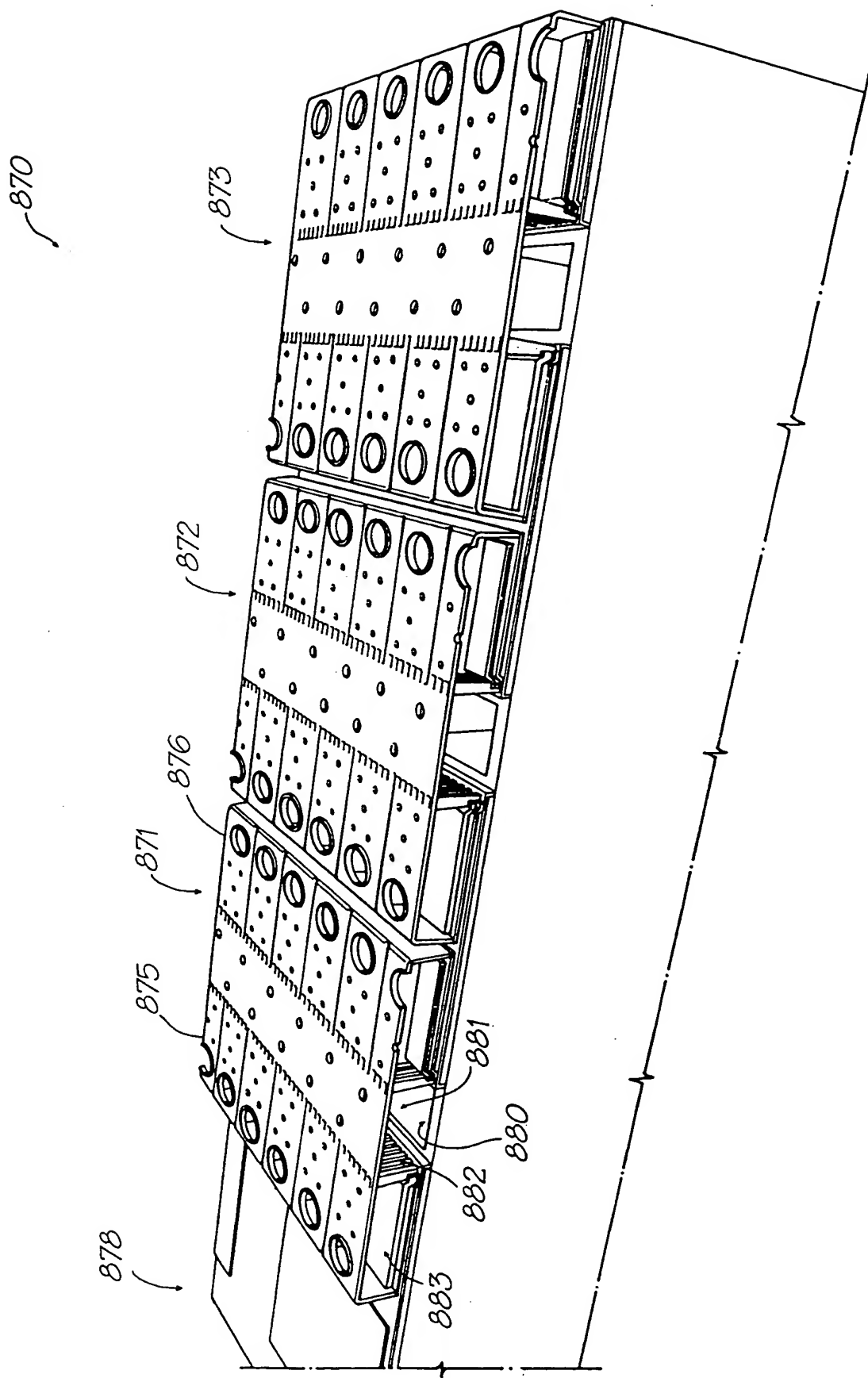


FIG. 211

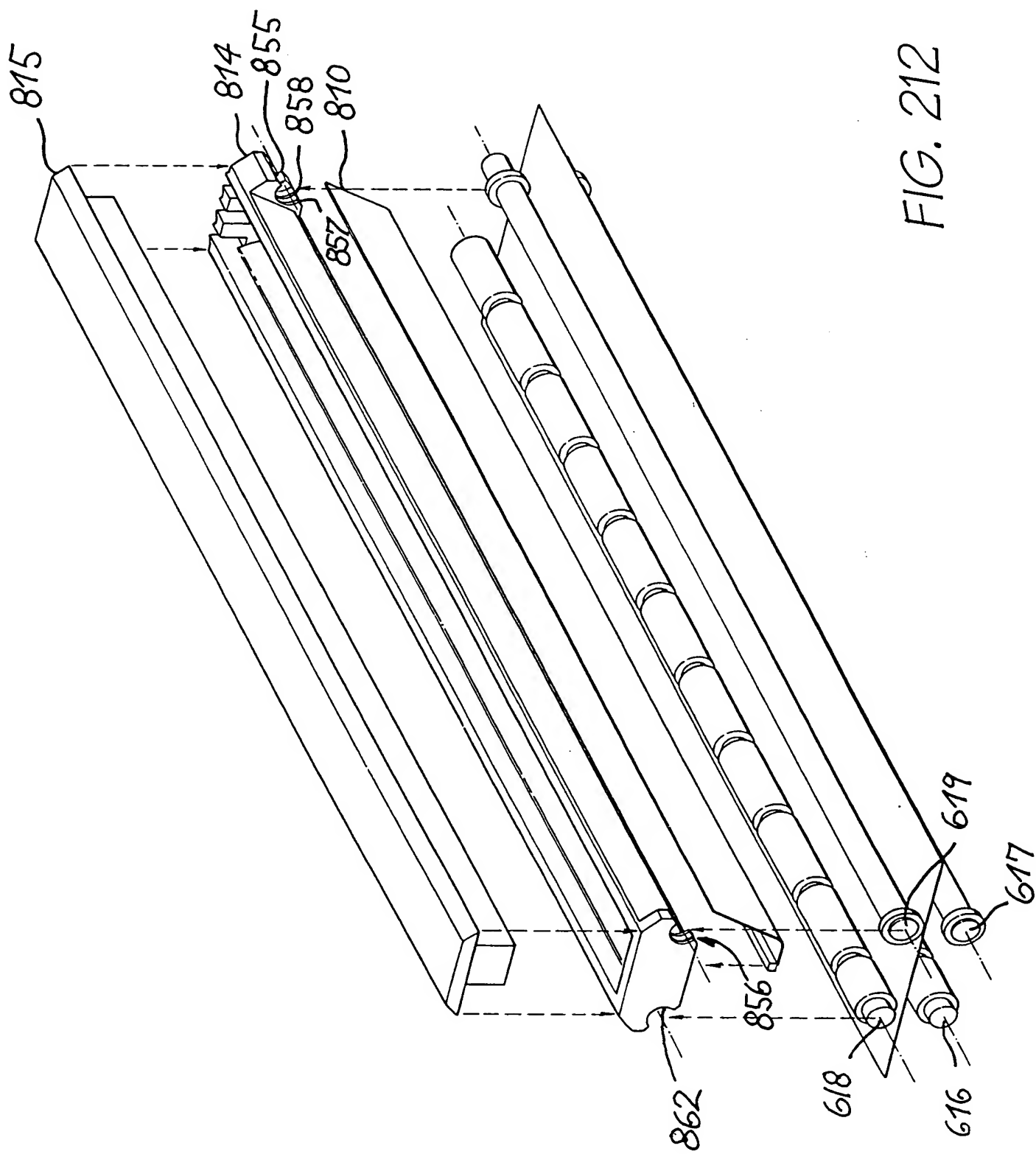


FIG. 212

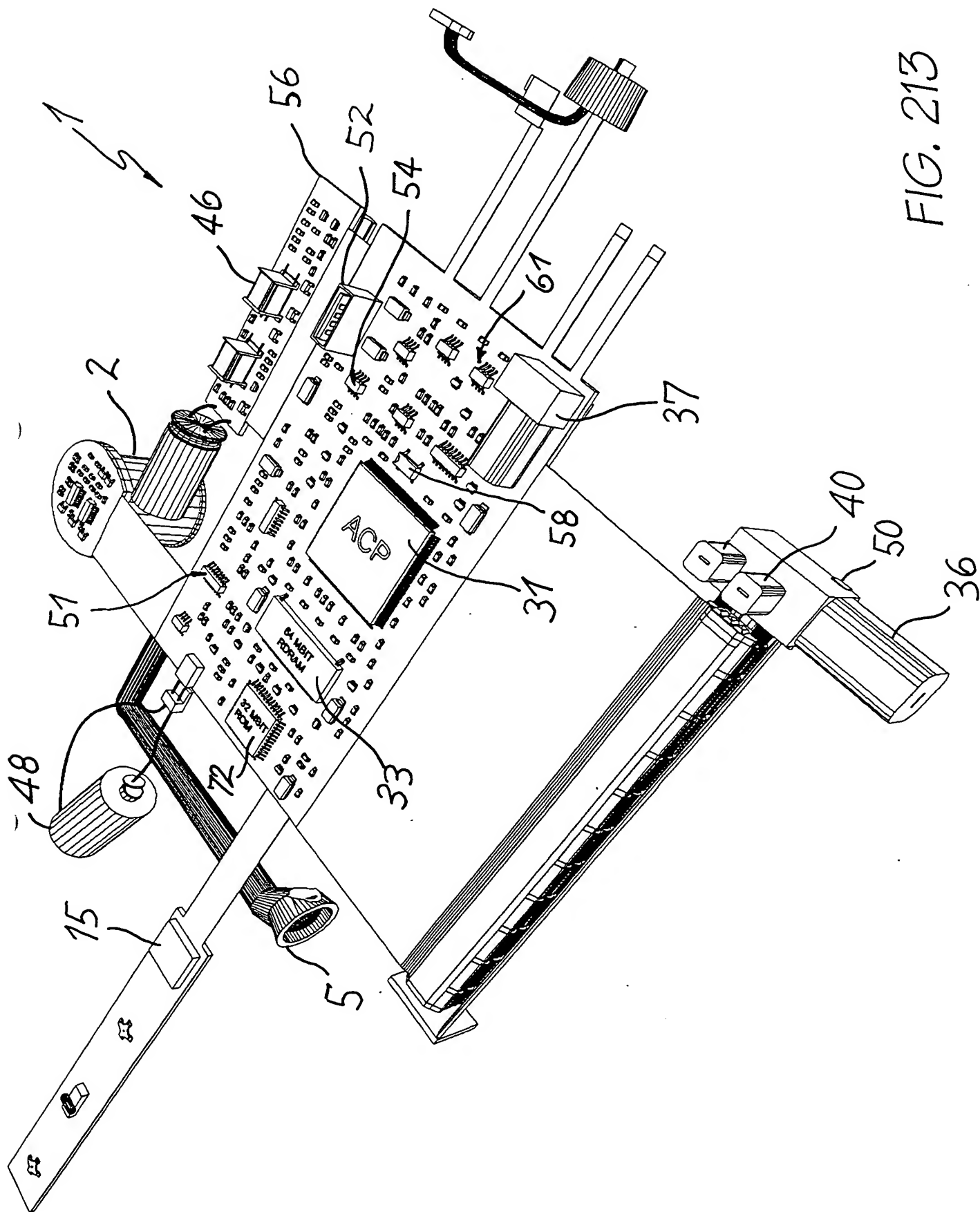


FIG. 213

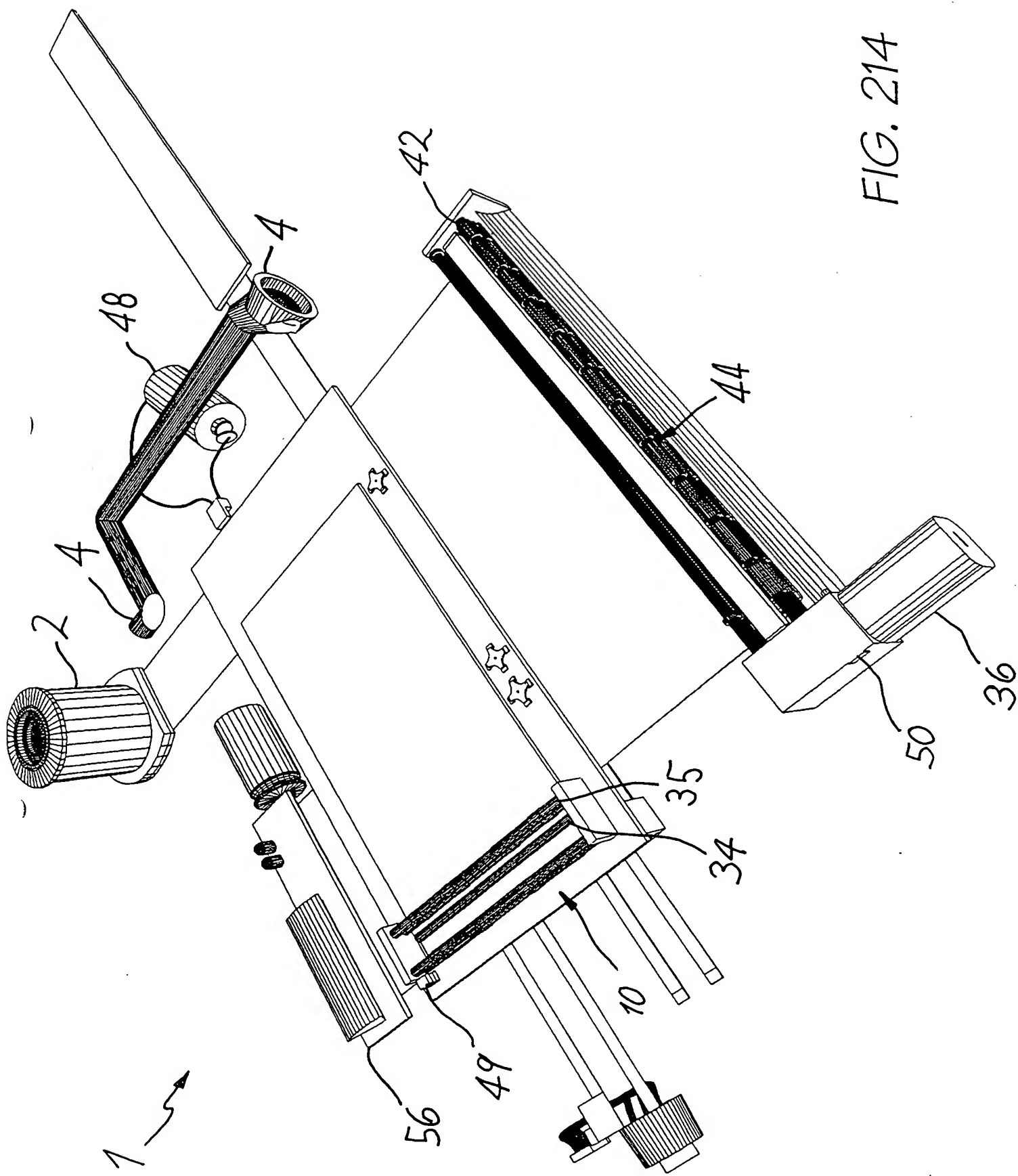


FIG. 214



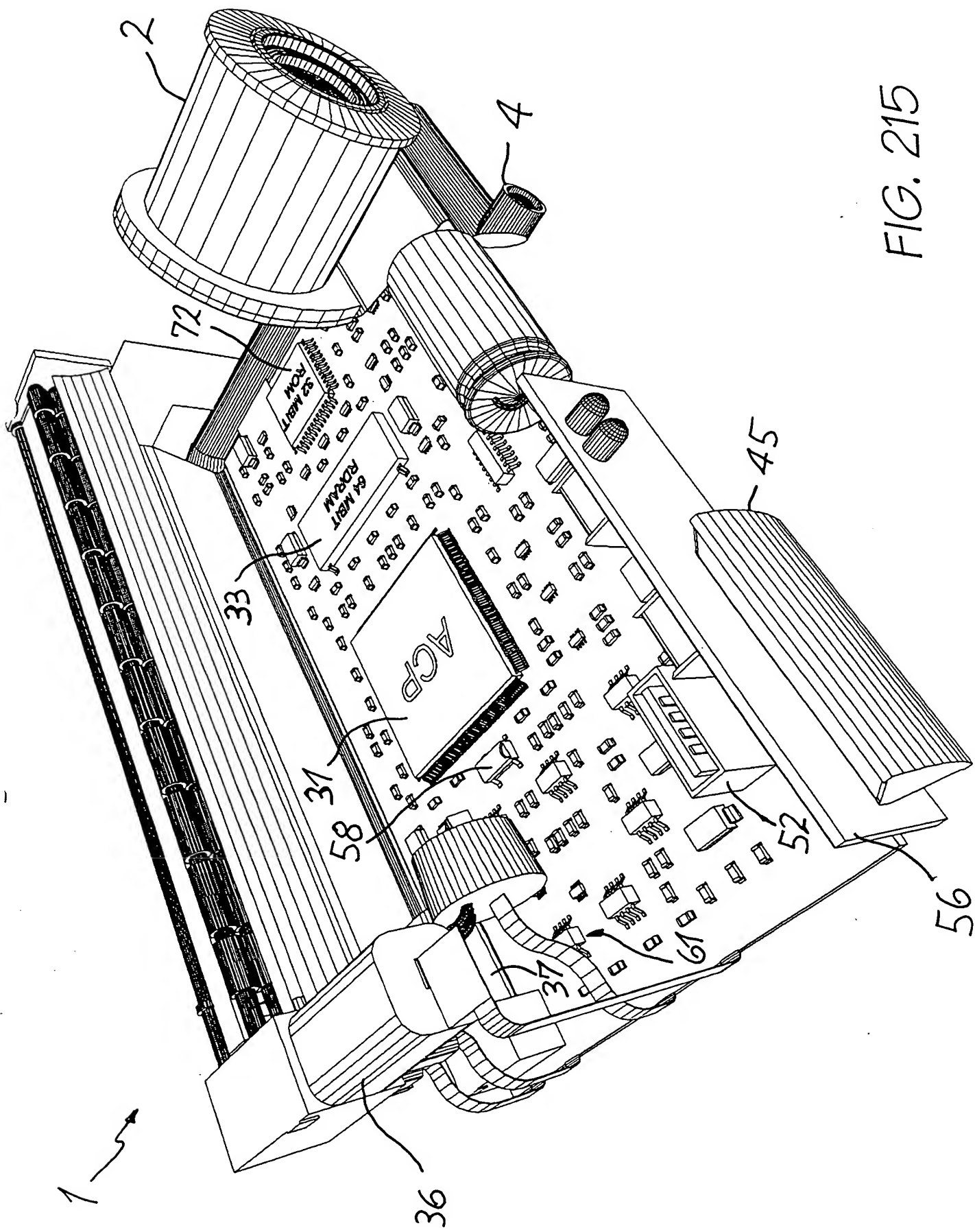


FIG. 215

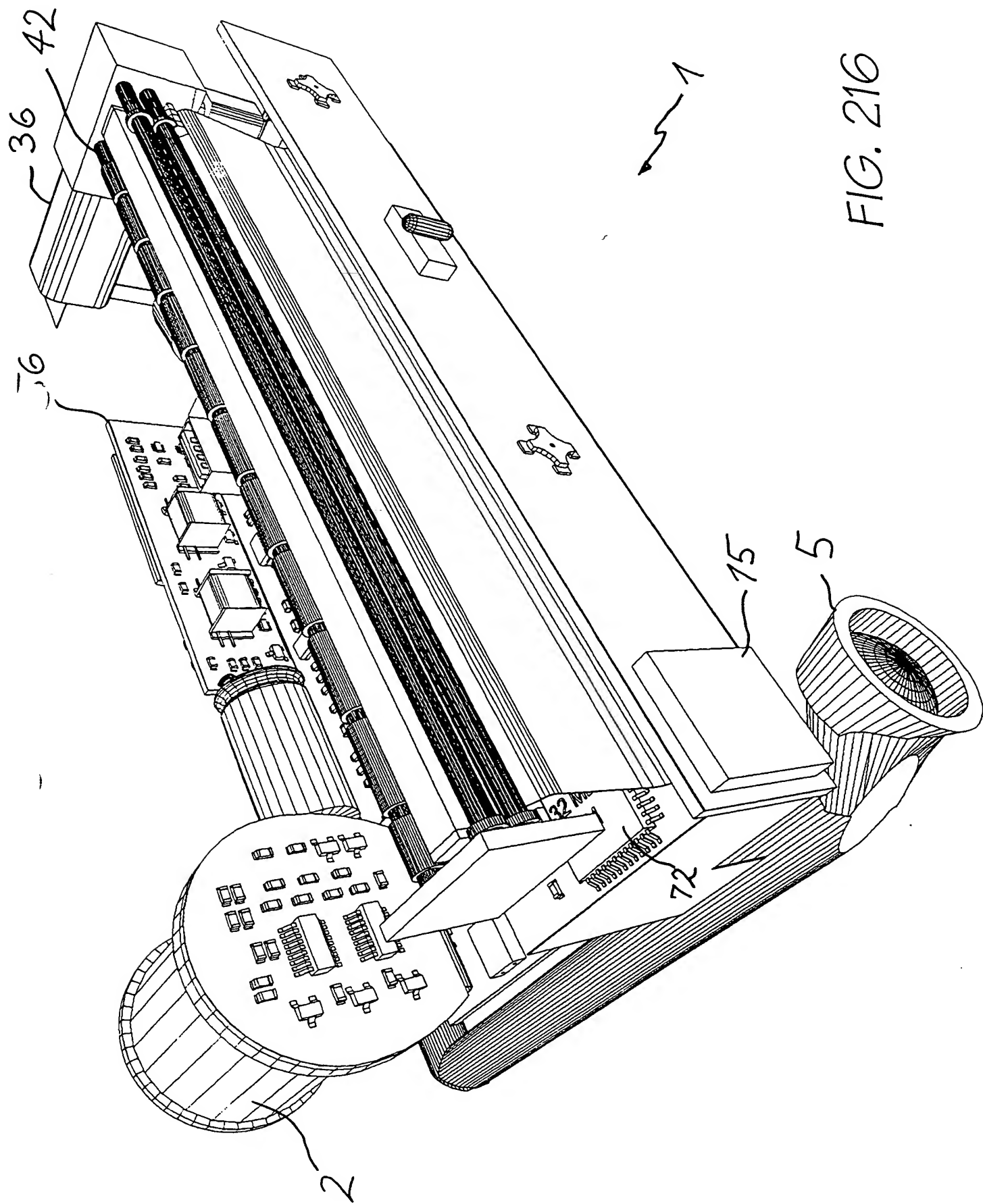


FIG. 216

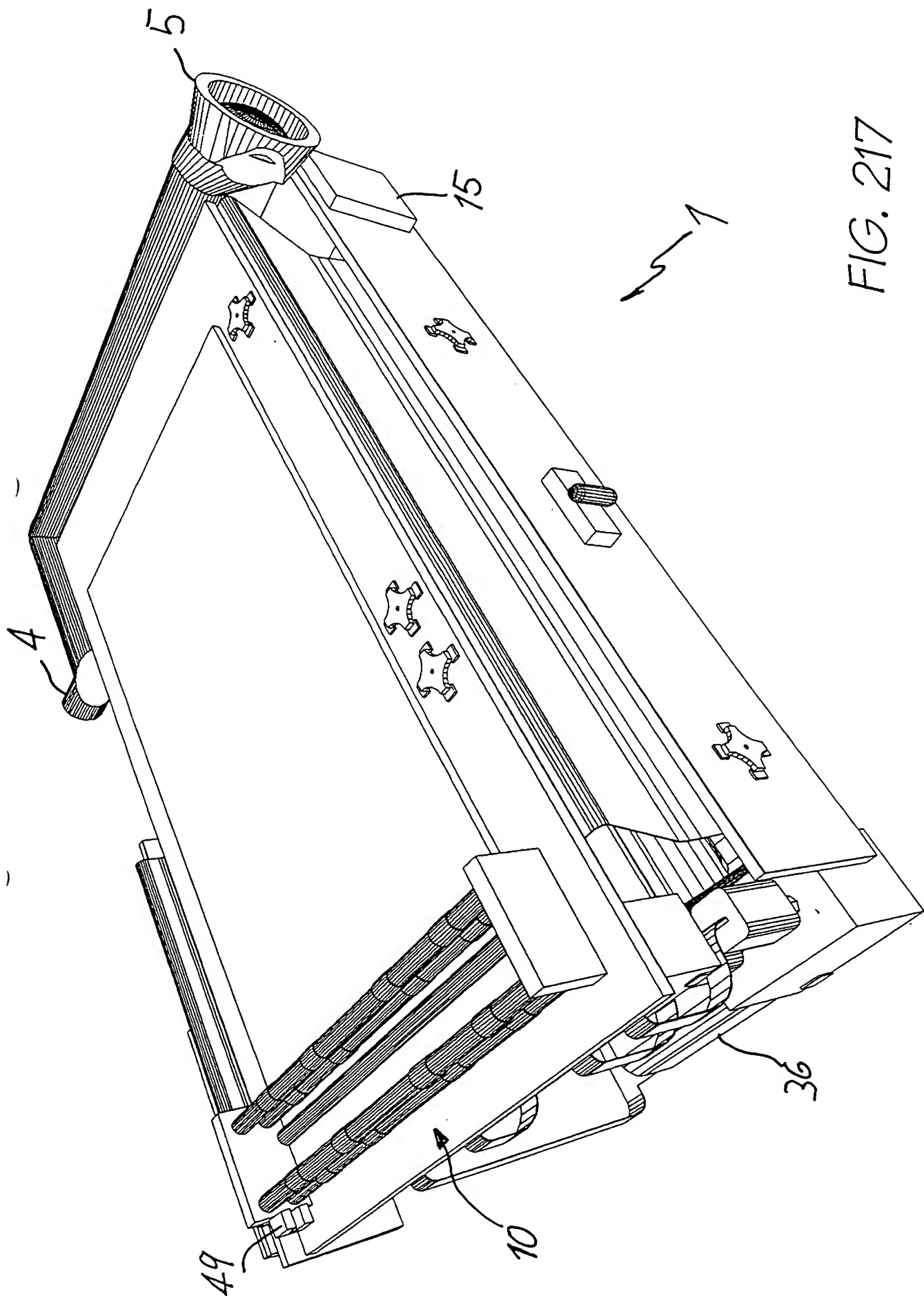


FIG. 217

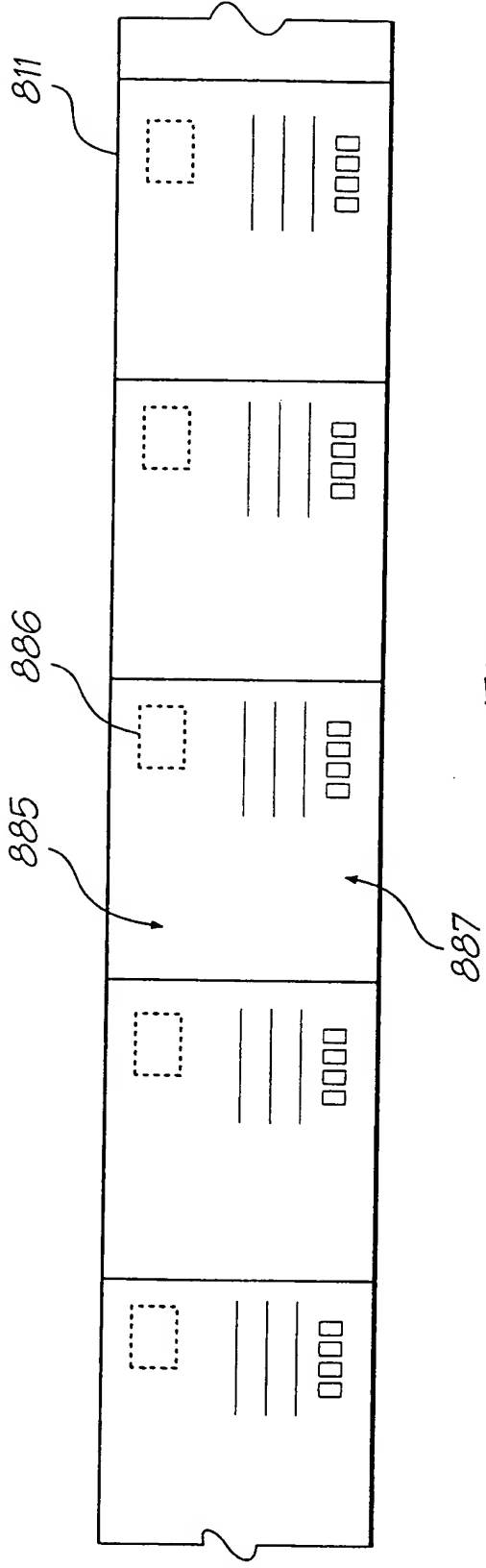


FIG. 218

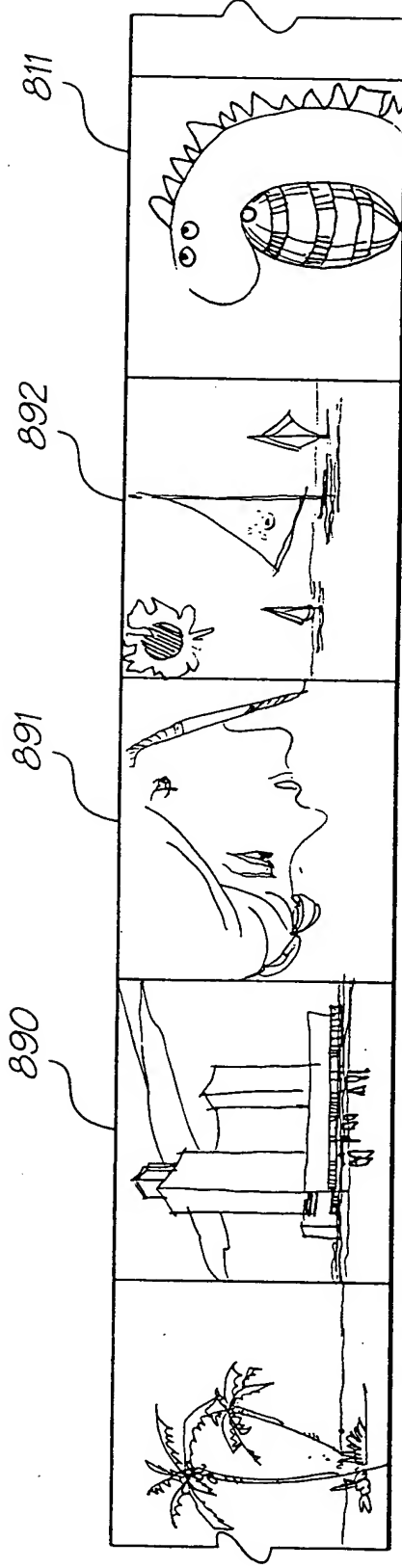


FIG. 219

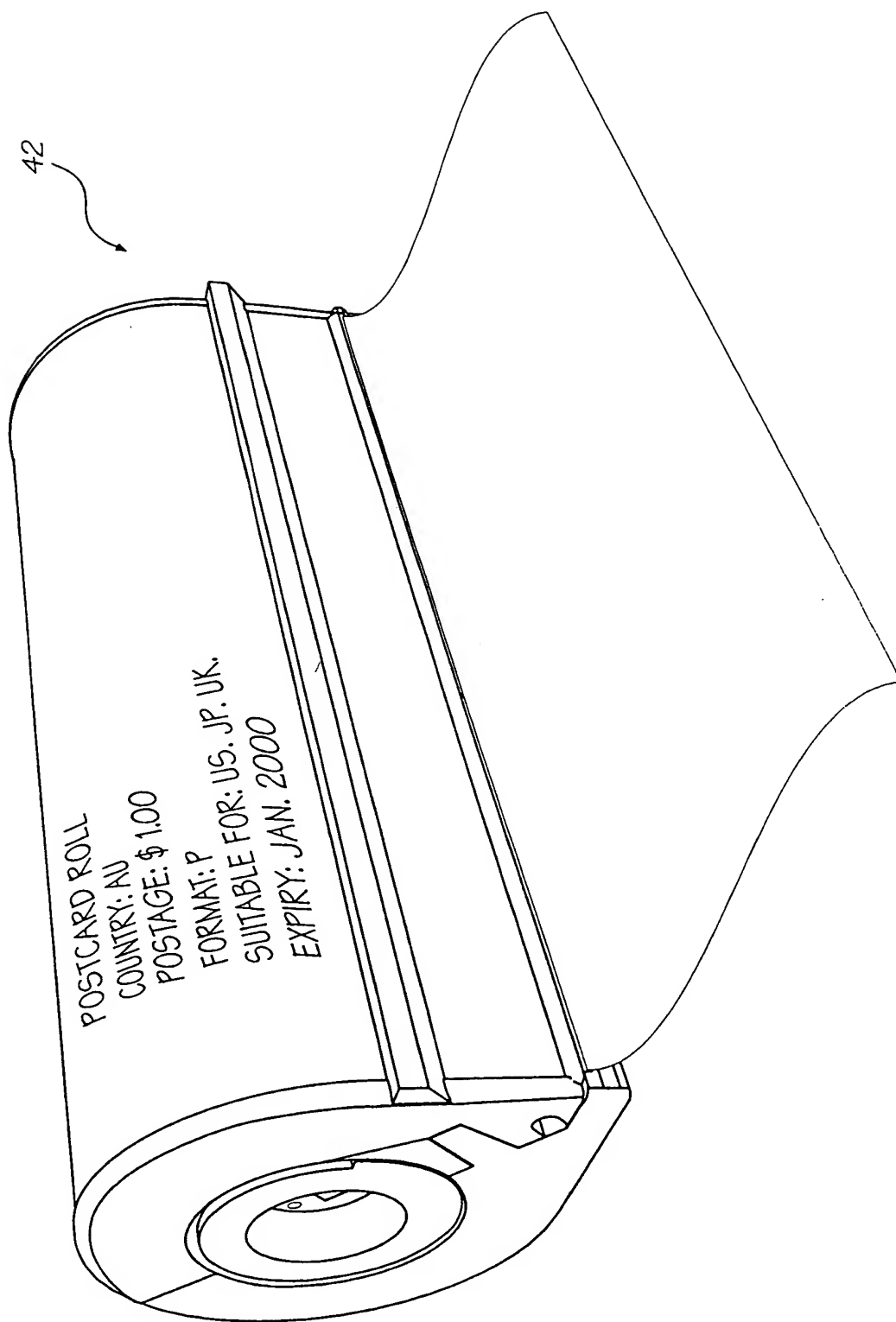


FIG. 220

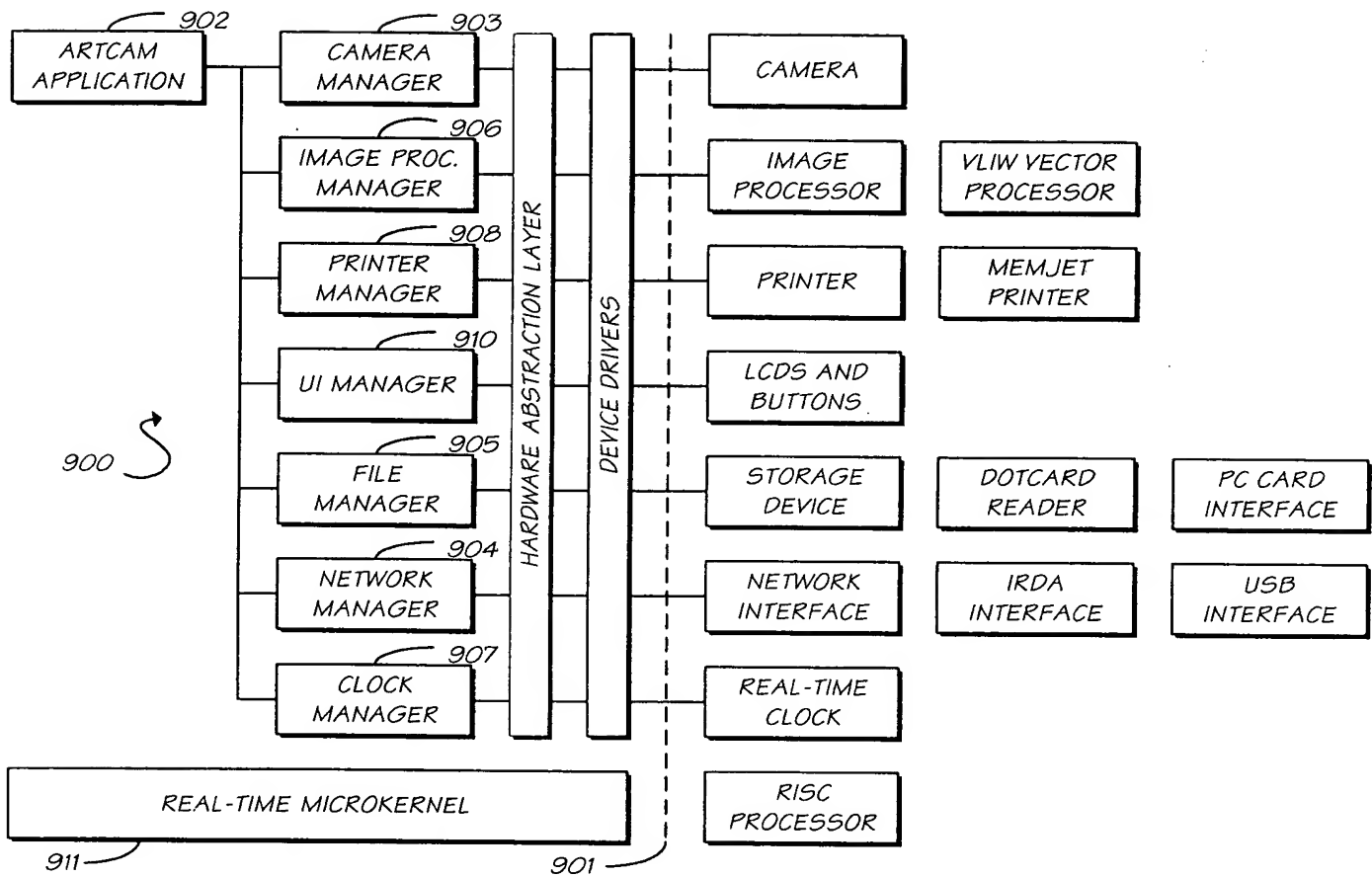


FIG. 221

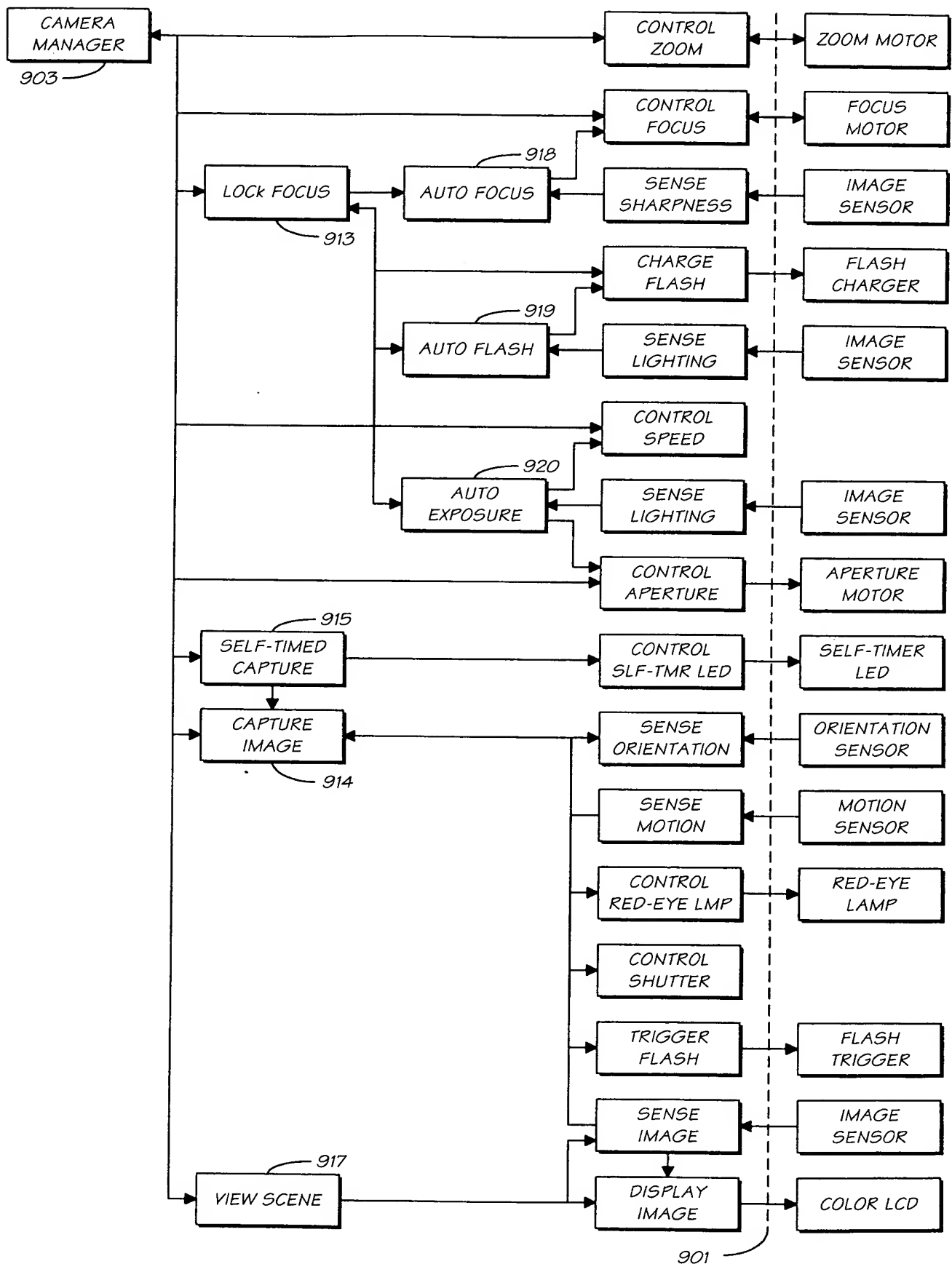


FIG. 222

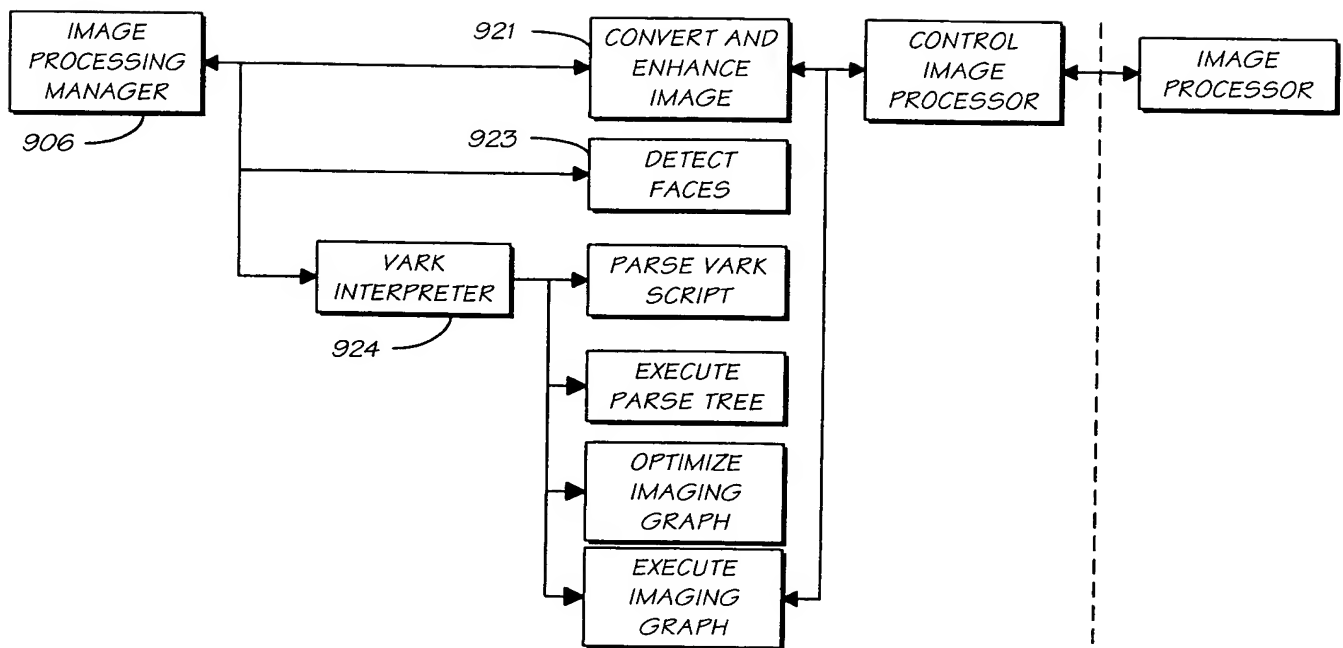


FIG. 223



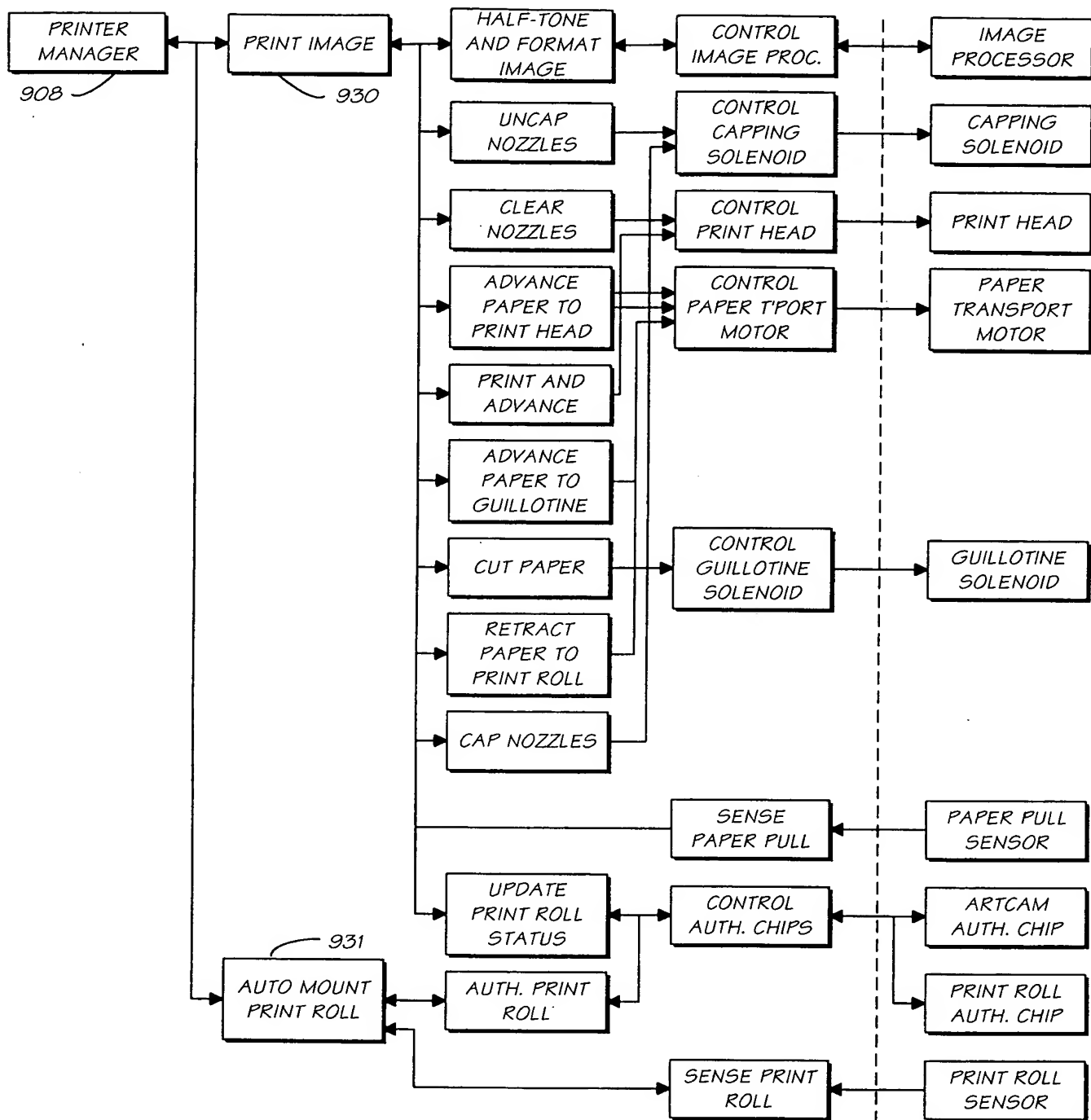


FIG. 224

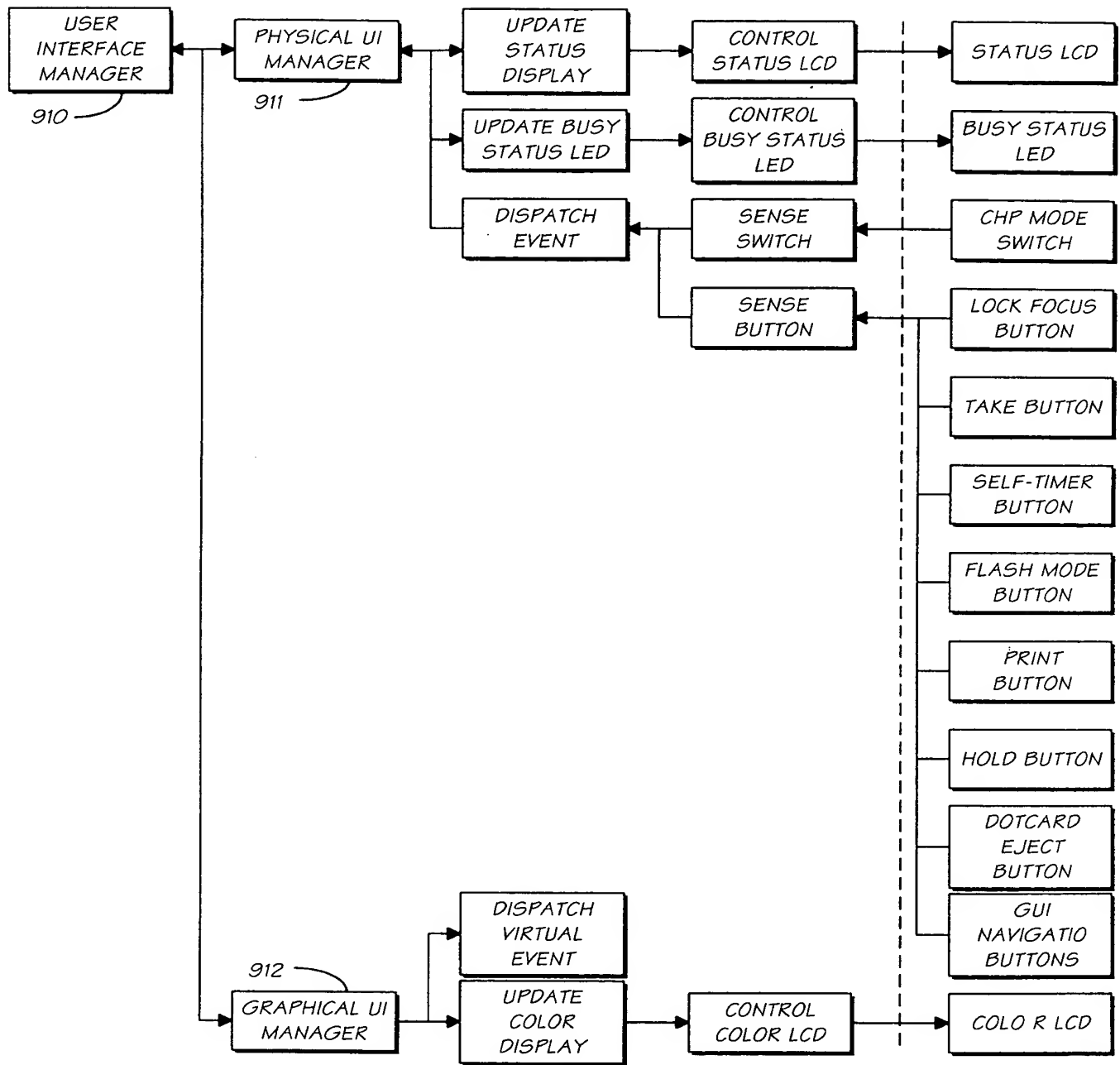


FIG. 225

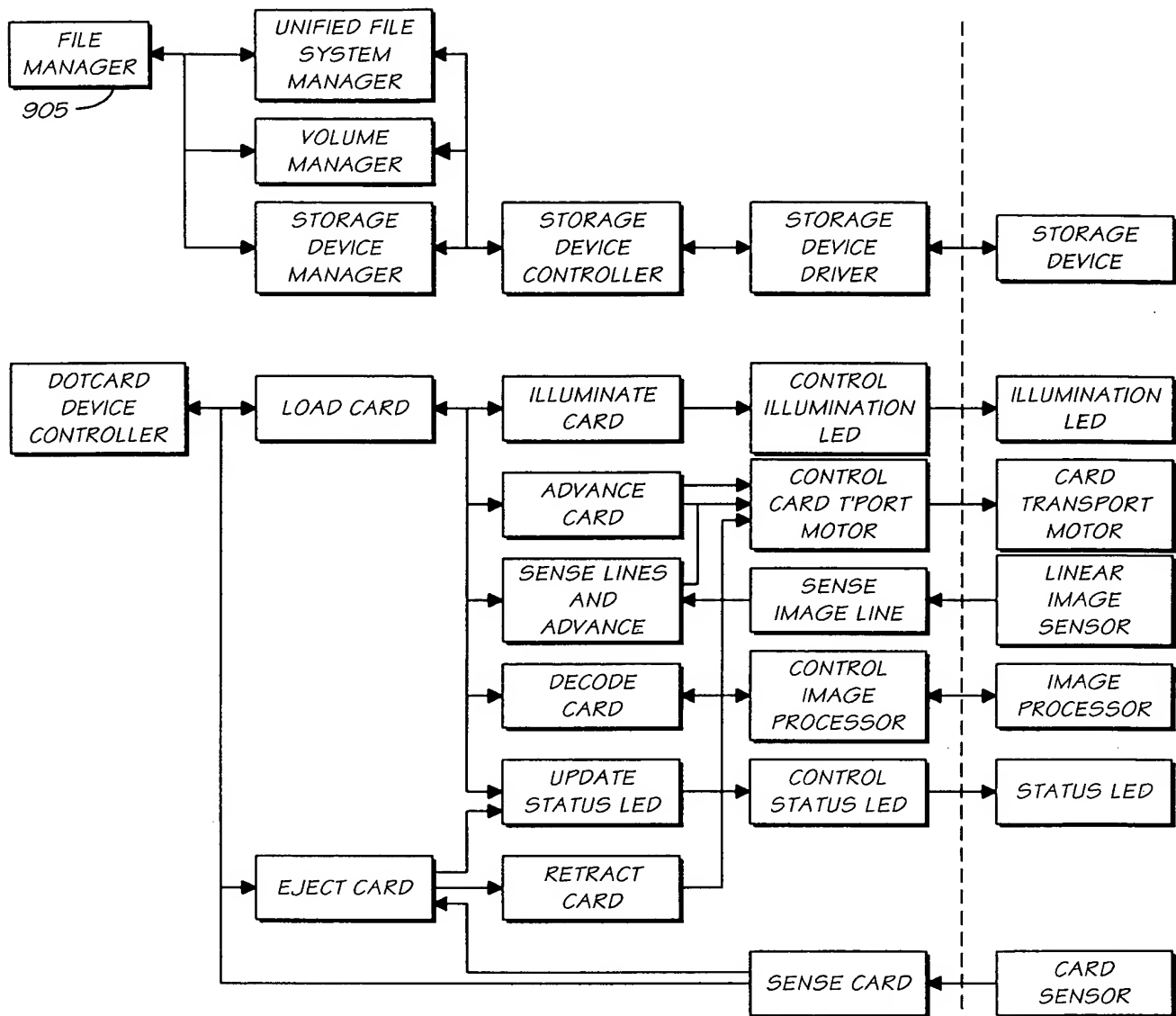


FIG. 226

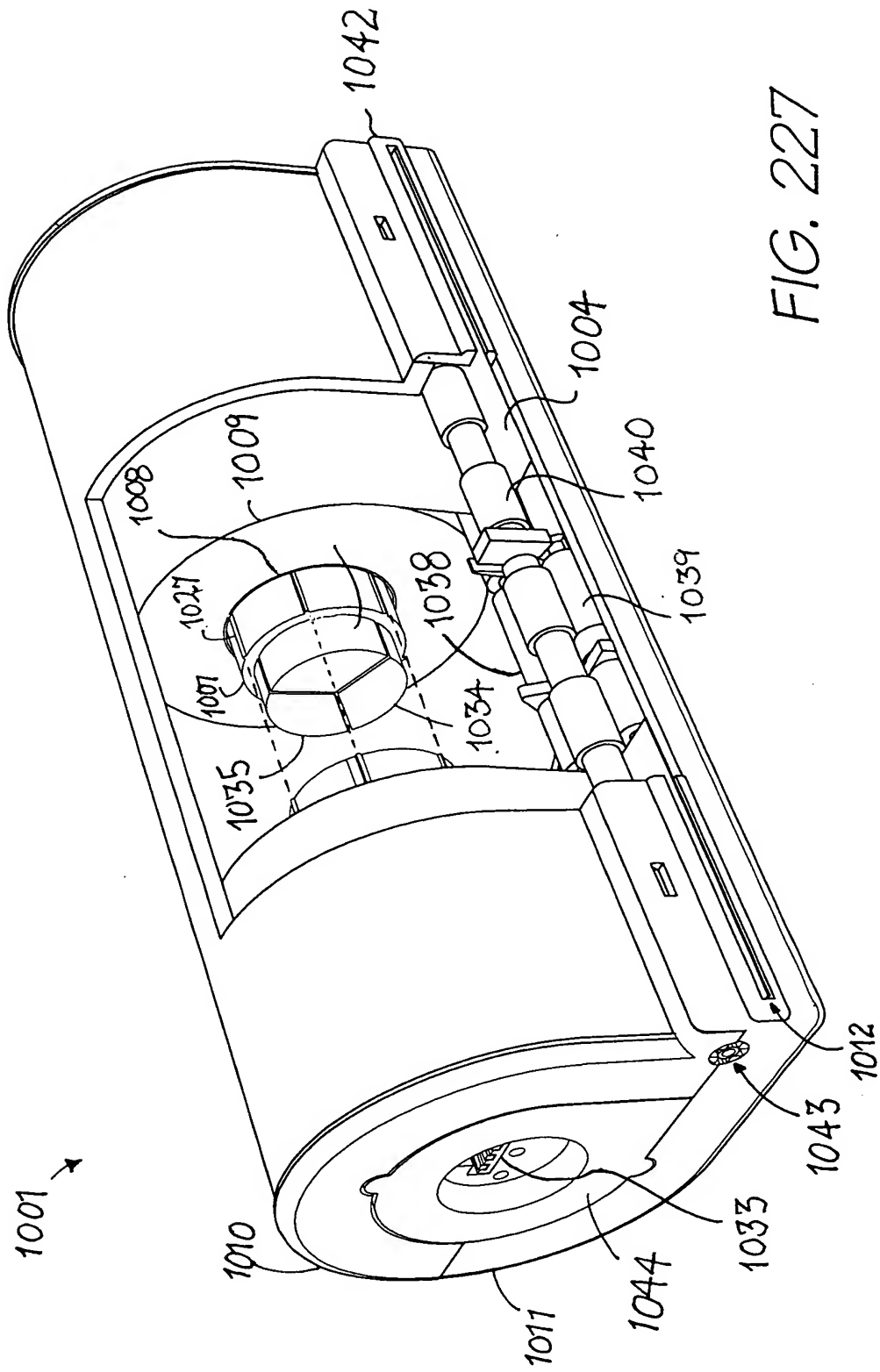


FIG. 227

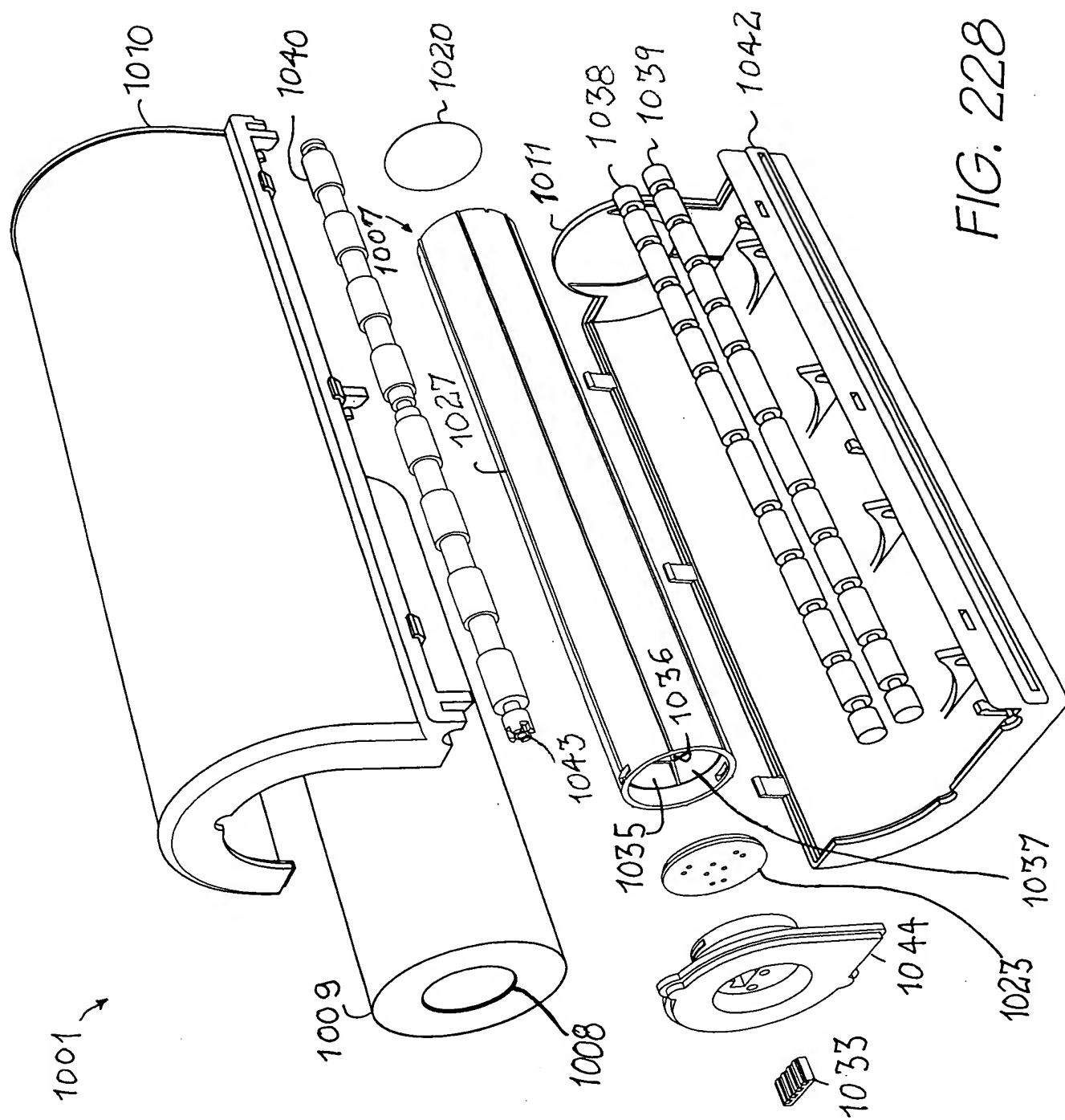


FIG. 228

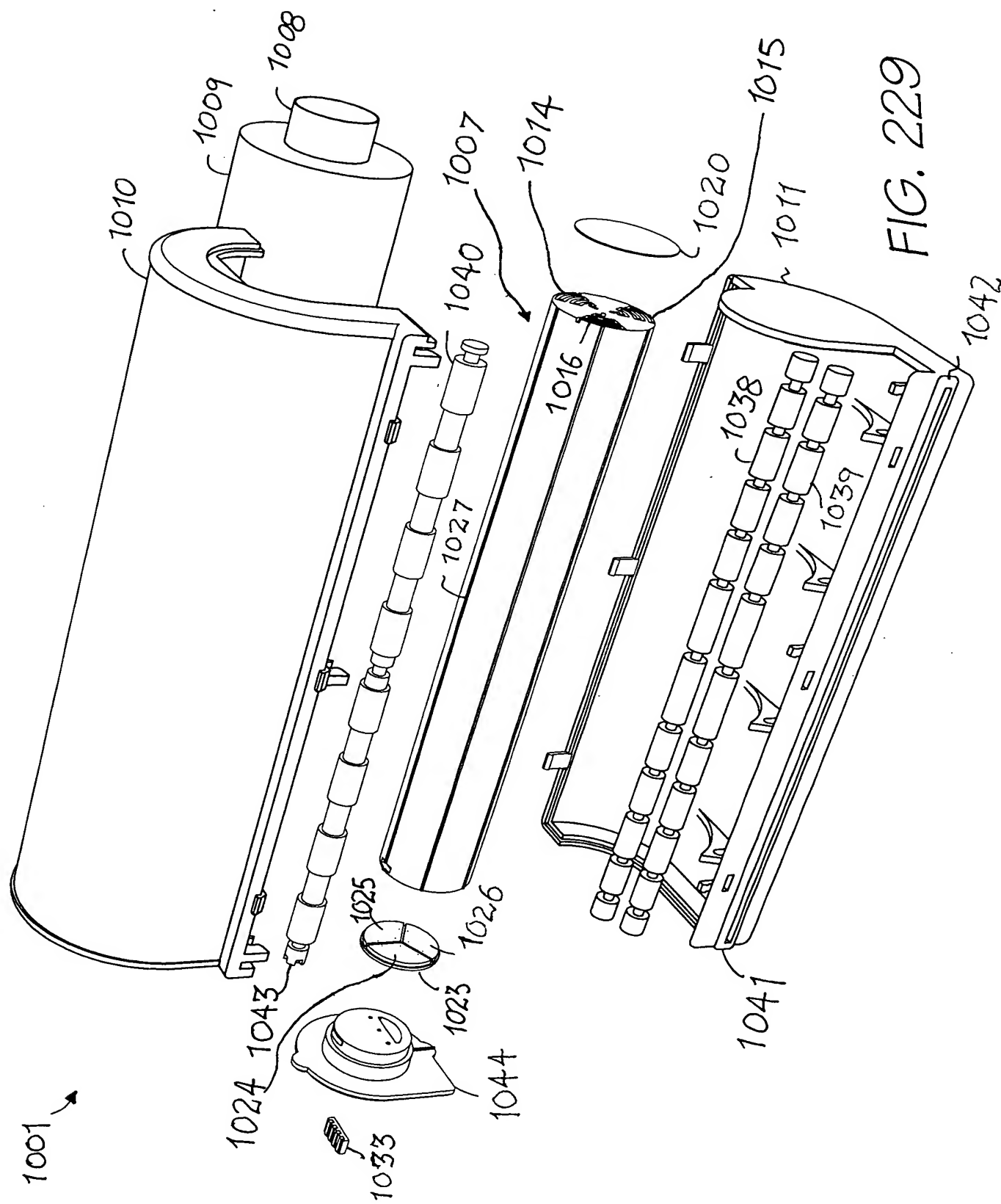


FIG. 229

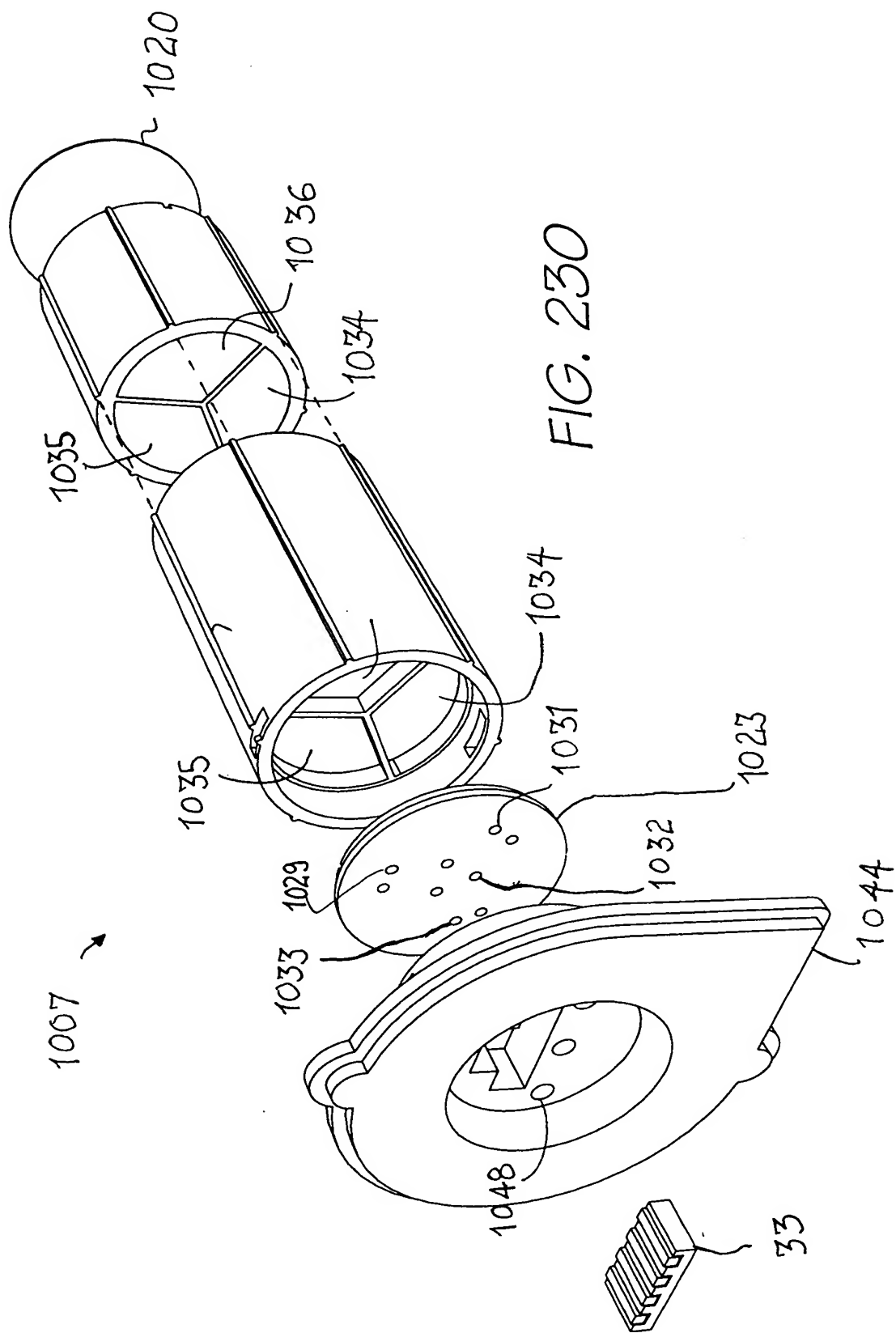


FIG. 230

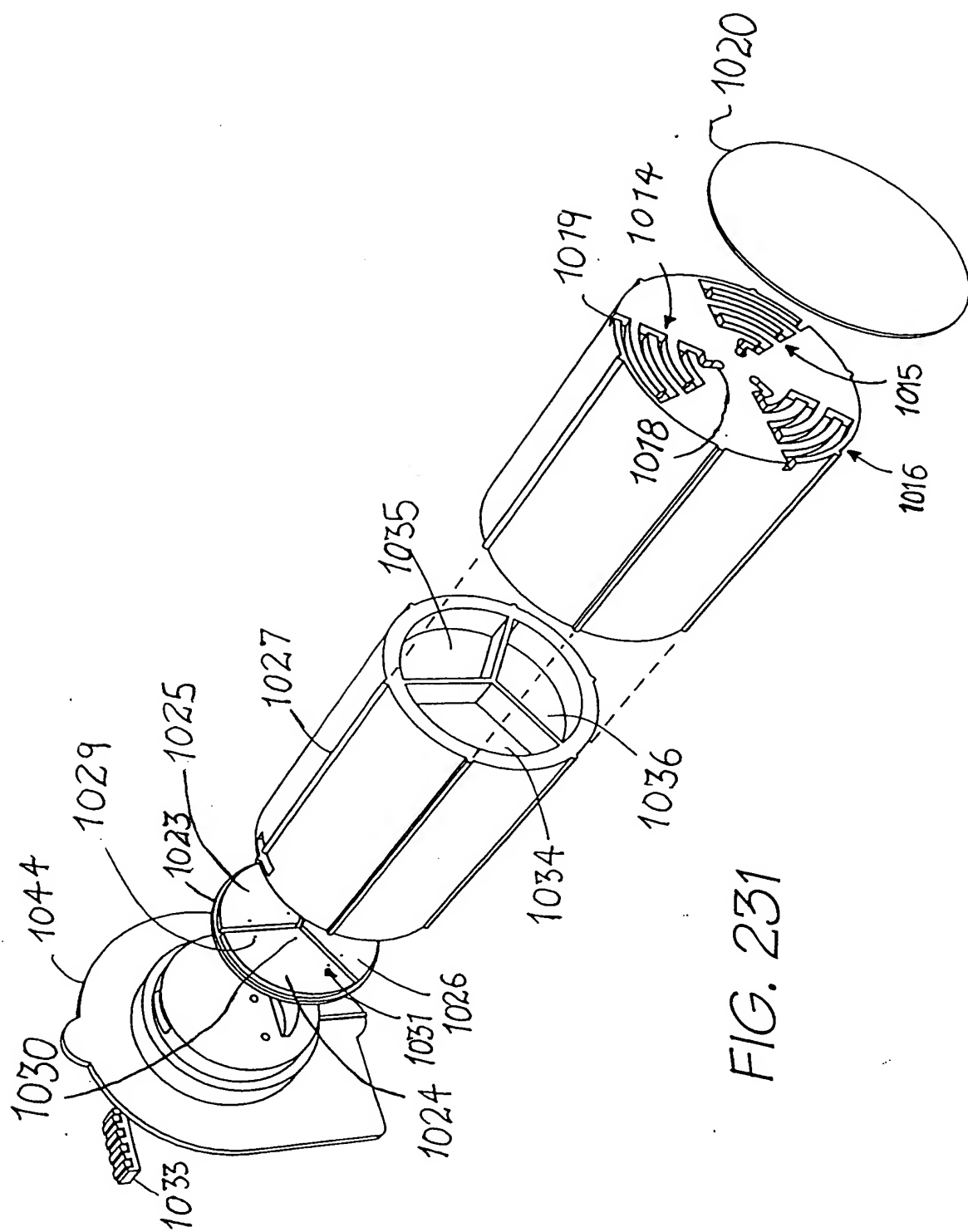


FIG. 231